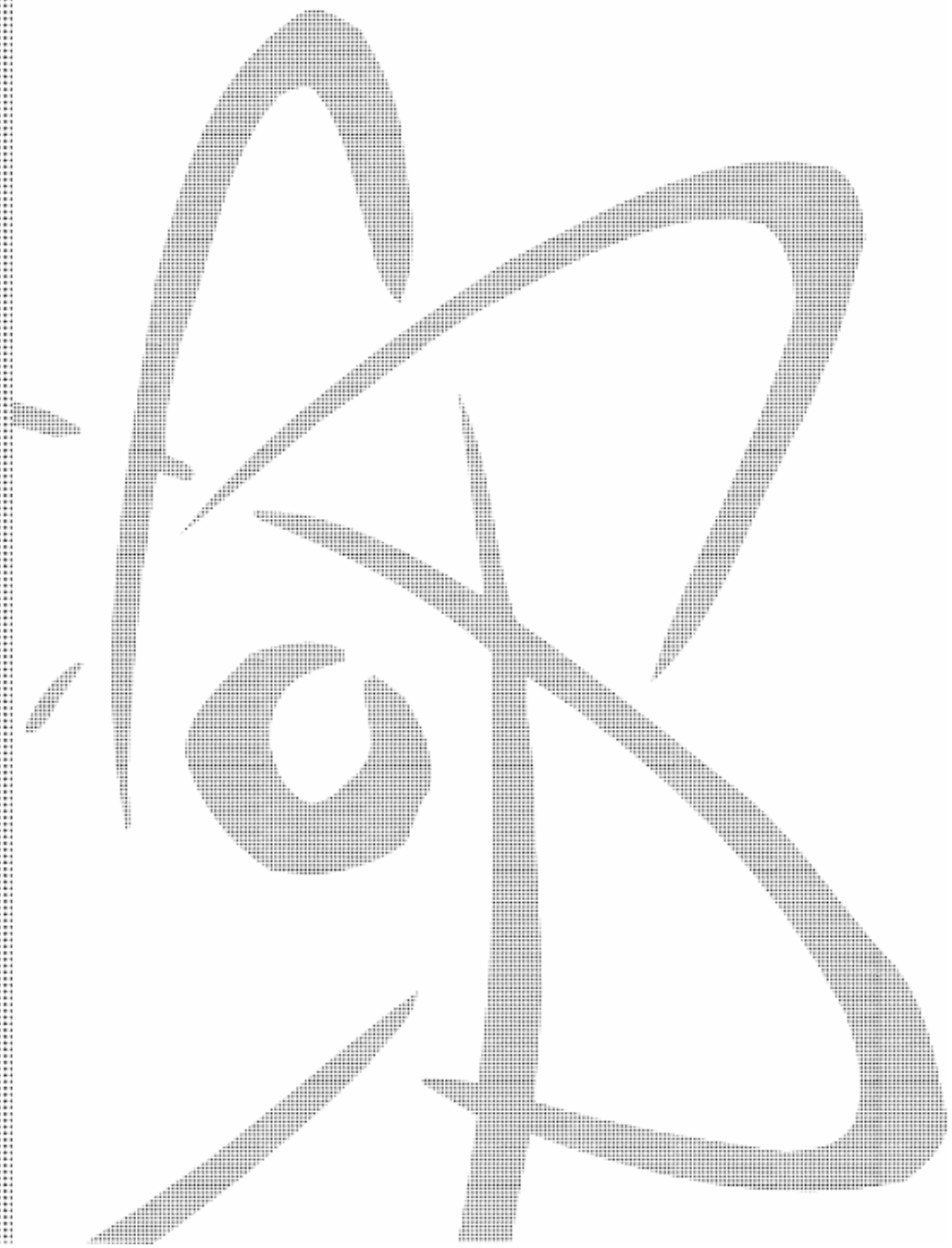
16ch DIGITAL VIDEO RECORDER

INSTRUCTION MANUAL

Before connecting, operating or adjusting this product,
Read this instruction booklet carefully and
completely



- Helpful Tips -

1. System power should be off when installing or removing external storage devices.

For the purpose of data protection and safe system operation, make sure that the system power is turned off before installing or removing external storage devices such as IEEE1394 HDD, USB FDD device or portable HDD.

When rebooting DVR system, turn off and on the external device(IEEE1394) for external device initialization.

2. Check the color marked on the screen.

For user convenience, channel mode is marked for each channel.

WHITE Mark : Video Loss

RED Mark : Record Mode

BLUE Mark : Live Mode

GREEN Mark : Event Record Mode(Alarm, Motion).

3. Be cautious when recording.

Set the system time and date, and check schedule settings prior to record.

Record button at the front functions depending on schedule and record setting conditions.

4. High quality view.

If using composite VBS monitor, unset VGA Monitor Output under System Setup / Video Output for high quality view.

If using VGA monitor, press STOP and DISPLAY button at the same time and hold it for 3 seconds for high quality view.

5. System password

Set password under System / Administration / Admin. Password, check Use Password box to enable system password. This will prompt for password when record or menu button is pressed.

Do not expose or forget the password.

6. KEY LOCK function

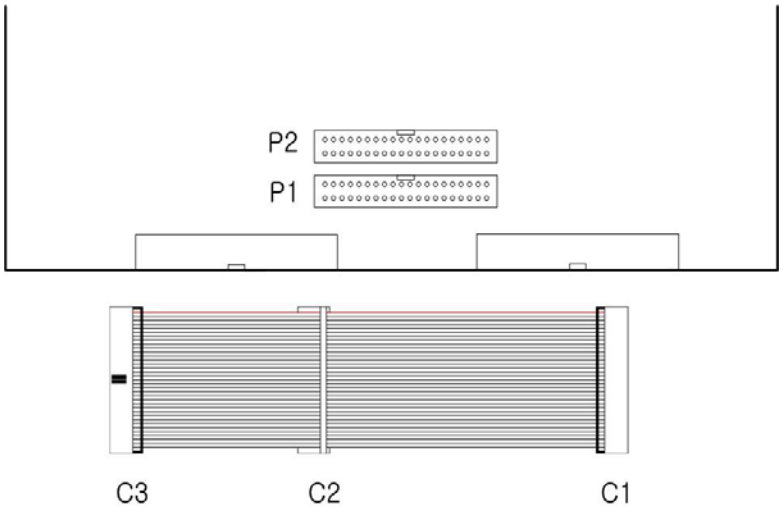
Enable Lock Front from administration menu to disable all buttons other than Setup button.

- Refer to manual for details.-

Instructions and tips for installing and removing internal HDDs

Removing or installing HDD(s) may cause to delete data in HDD(s) and therefore please contact service center prior to this operation.

- The system is designed to install 4 internal HDDs at most as shown below.



- P1 slot : Slot for connection to Primary Master, Slave HDD or both together.
- P2 slot : Slot for connection to Secondary Master, Slave HDD or both together.
- C1 : Connects to P1 or P2 slot on board.
- C2 : Connects to Slave HDD.
- C3 : Connects to Master HDD.
- For a removable HDD, connect C2 to P2 slot and set the HDD as a slave. (Secondary Slave)
- HDDs should be connected in the following order and expressed as written below.
- Cable for P1: ① IDE(PM)/Primary Master HDD, ② IDE(PS) /Primary Slave HDD
- Cable for P2: ③ IDE(SM)/Secondary Master HDD, ④IDE(RM)/Secondary Slave HDD
- For HDDs' Master/Slave settings, refer to HDDs' manual that stuck on top of HDDs.

Master/slave setting instruction

WARNING

1. Install or remove HDDs in the order as shown above.
2. Deleting a HDD will also delete all data in HDD(s) numbered after deleting HDD.
3. Using other HDDs' may cause HDDs' data corruption or deletion.
4. Use HDD with encouraged specifications. (Maker,Capacity,Type)

WARNING : Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

FCC WARNING : This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

INFORMATION TO THE USER

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

This Class (A) digital apparatus meets all requirements of the Canadian interference Causing Equipment Regulations.

Cet appareil numerique de la classe A respecte toutes les exigencces du Reglement Sur materiel brouilleur du Canada.

THE EQUIPMENT COMPLIES WITH THE REGULATION OF FCC CRF 47 PART 15, SUBPART B, CLASS A. THIS TEST REPORT CONTAINS ONLY THE RESULTS OF A SINGLE TEST OF THE SAMPLE SUPPLIED FOR THE EXAMINATION.

CE WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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1. Safety Information

You should pay attention to these following information before installing DVR.

WARNING

◈ Do not expose the product directly to the sun or a heating apparatus.
(It is in danger of fire.)

◈ Do not leave vessels with water such as a vase, a flowerpot, cup, cosmetics.
(It may cause fire or electric shock and possible to be injured because of falling.)

◈ Do not put or fall metallic material (coin, hair pin, metal) or the inflammables (paper, match) into a vent.(It may cause fire or electric shock.)

◈ Do not leave heavy stuffs on the product. (It may cause an injury as fall.)

◈ Do not expose the battery to children. If a child swallow the battery, consult with a doctor.

◈ Fix the power plug well in order to not vibrate. (Instable connection is caused a fire.)

◈ Take out the power plug under thunder or lightening. (It may cause a fire.)

◈ If the product is dirty,
* Polish the product with dry towel.
* Do not use chemicals or detergent. (It may cause the cover is changed in quality or paint could be removed .)

◈ Do not use the power plug with other power plug. (It may cause a fire or heat.)

◈ Discontinue using if there is strange smell or smoke.
After turn off the power, contact to service center.
If you use as it is, it may cause a fire or electric shock.)

◈ Do not touch the power plug with wet hands.(Electric shock is possible)

◈ Do not pull the power cord. (If the part of power cord is damaged, a fire or electric shock is possible.)

◈ Do not twist the power cord. It may cause a fire or electric shock.

2. Part Names and Features

2.1 Basic Organization of DVR System

Contents and shape can be different.

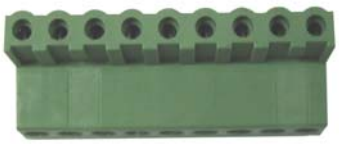
DVR

Hard Rack Key

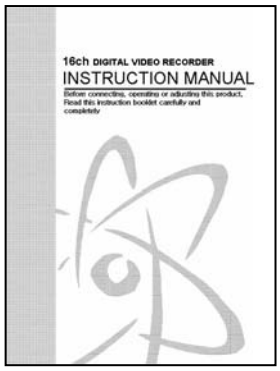
Rack Mount

RS-485

Alarm Out



Sensor In (2EA)



Manual

Rubber Foot

Power Cord

2.2 Features

1) High quality digital recording
   - Output and playback High-Resolution digital recording by using Wavelet compression and a restoration circuit.

2) Simple user environment
   - Simple operation by embedded hardware and jog /shuttle.

3) High reliability
   - Highly reliable due to a combination of hardware quality and LINUX based operating system. Auto-diagnostic function provides quick warning and troubleshooting advice for timely repairs in the event of a system failure.

4) Simple setting and system maintenance
   - Enables simple installation and operation with basic setting and camera inputs.

5) Diverse total security function
   - Enables security system by using sensor input, a contact point control, and camera control.

6) Remote data back up
   - It is possible to back up and playback by using client program via network.

7) Backup (IEEE1394 HDD, IEEE 1394 CDRW)
   - Massive amount of image backup is possible by using external IEEE1394 and CDRW. Specially it is possible to extend HDD up to 20pcs and also possible to back up specific image by using USB FDD, USB ZIP Driver via USB port.

8) Diverse monitoring function
   - Diverse monitoring is possible such as FULL/PIP/4/6/8/9/13/16 /user/ZOOM screen.
     Specially you can watch monitoring screen while it is being recording.

9) Remote security function
   - Cameras can be remotely controlled and images can be viewed from anywhere through a web browser over a private line or via the Internet without any special software. System is compatible with PC or Mac with any type of operating systems.

If the system is being backed up by HDD, you will not be able to use playback (P/B) remote security function.(Live monitoring is possible through a web browser)

10) Audio recording playback function
- Can record for long periods of time due to compression of the channel audio signal.

11) Motion detection and event recording function
- Detects optional field, label, and sensitivity of each channel, and able to record automatic register by connection with an outside sensor.

12) Various search functions
- Records quickly via diverse search conditions such as date, time, camera, and ALARM, and search function while recording.

13) Diverse recording set-up options
- Supports efficient recording management options such as screen size, recording screen, frames per second, and compression rate while recording. Efficient recording is possible as set up recording speed while event recording.

14) Diverse recording functions
- Supports diverse recording criteria such as on-screen date/time, residuum mark while recording, and ALARM LOG indicator. It is possible to record ALARMs and programming.

15) Automatic check and recovery function
- The system is designed for continuous, fault-free operation with built-in, self-monitoring functions that monitor each component of the system and will automatically restart if a system failure is encountered.

16) Diverse external device control
- Able to control a multitude of external devices and cameras through the RS-485 port.

17) Program upgrade function
- It can be upgraded through internet or USB port when adds functions or changes the program.

18) Multi password function
- Each user can make ID and password and possible to control Setup, PTZ, REC, PB menu.

19) Email Notification
- Whenever events are happened, it sends email regularly as setup at Conditions.

2.3 Part Name and Description

• **Front**

1) Power Switch
: Power ON/OFF switch. IMPORTANT! Check the power source (AC115/230V) before use!

2) INPUT Button (CH1 – CH16)
: These buttons are used to select the screen monitors and to change the channel settings at the menu.

3) AUTO Button
: The input channel is automatically switched in proportion to the speed setting at the menu.

ALARM RESET Button
: This button is to stop the alarm.

◀ Button
: This is for selecting Motion Grid or moving cursor to the left.

4) PANORAMA Button
: This button is for replay P/B screen with field unit.
▲ Button
: This is for selecting Motion Grid, changing character or moving cursor to up.

5) ZOOM Button
: This is used to zoom a freeze-frame in playback mode. Selected screen is X2,X3,X4.
ENTER Button
: This is for selecting set up Menu.

6) TRIPLEX Button
: This button is for replay PB screen to TRIPLEX mode.
▼ Button
: This is for selecting Motion Grid, changing character or moving cursor to down.

7) Freeze Button
: This button is for seeing monitoring and PB screen as pause screen.
Freeze image backup button
: It is for backup freeze image at external FDD.
▶ Button
: This is for selecting Motion Grid or moving cursor to the right.

8) Display Button
: This button is for viewing the various division modes of the monitor screen and PB screen.

9) USER Button
: This is for user's screen mode.

10) SET UP Button
: This button is for selecting or canceling the monitor setup menu mode.

11) REC, STOP, Reverse Playback (EXIT), PLAY Button (ENTER)
REC : This is for recording.
STOP : This is for stop PB.
Reverse Playback (EXIT) : This is for reverse PB. It is also for finishing menu setup, moving to previous menu or erase wrong character.
PLAY Button (ENTER) : This is for playback and set up menu.

12) Jog Shuttle (REV, CUE, Up, Down)
: It is possible to 'quick search' during playback and also used to change the modes of the menu.
Shuttle : This is for quick search when PB and it is used for change MENU.
JOG : This is for slow search when PB and it is used for moving MENU' s cursor.

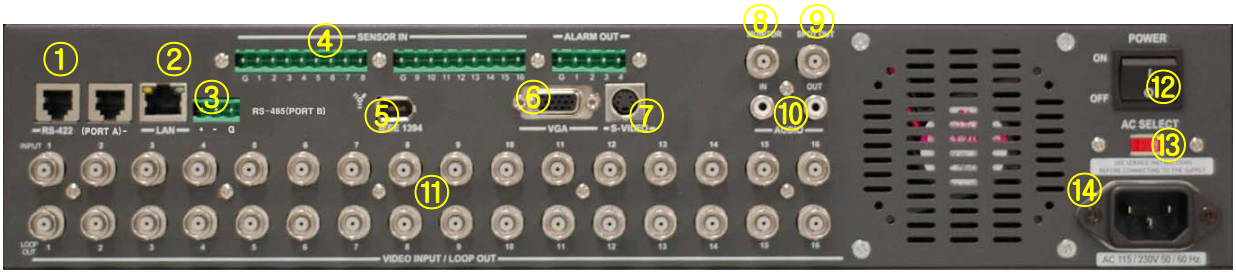
13) Backup HDD (Removable HDD or CD-RW)
: This is removable HDD or CD-RW and it is used for Backup or Main.

14) USB Port
: This is for connecting with external FDD or HDD to backup.

When connecting with external USB, please turn off the power.

If use IEEE1394 Port and USB Port together, connect IEEE 1394 port first then turn on the DVR then connect USB port.

• **Rear**



1) RS-422 : For connecting with external Pan/Tilt camera.

2) LAN : Enables screen search and control via Internet.

3) RS-485 : For connecting with external Pan/Tilt camera.

4) SENSOR IN : For sensor input.

ALARM OUT : For control of other devices.

5) IEEE 1394 Port : For backup by using external HDD.

! Please turn off the power when you connect external IEEE1394 with DVR.

! If you connect external HDD with external CDRW, impossible to recognize.
Make sure external CDRW is connected with DVR first then connect with external HDD to external CDRW. (daisy chain)

6) VGA OUTPUT : Possible to connect with computer monitor. (CRT type)

7) S-VIDEO OUTPUT : Outputs contents of monitor output as a S-VIDEO signal.

8) MONITOR OUTPUT (Composite) : Menu appears at the time of menu setting and displays when screen search or recording.

9) SPOT OUTPUT (Composite) : Outputs video which is set-up from the menu.

10) AUDIO : I/O for audio playback.

11) VIDEO INPUT BNC & LOOP OUT (CH1 ~ CH16)
: Inputs asynchronous video signal 1.0Vp-p.(75 ohm)
: Loop out is changed to HI-Z automatically.

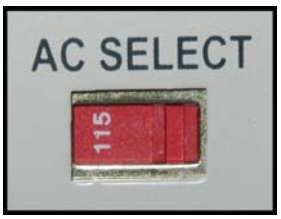
12) POWER Switch
: This is the main power switch.

13) AC SELECT : Select AC115V or 230V.

14) AC INLET : Input power voltage. Before using this switch, be sure the correct power source is selected (AC115V/230V) by checking the AC SELECT switch!

2.4 Power and Battery Setup

1) Power set up : Possible to select power (AC 115V/AC 230V) by AC Selector.



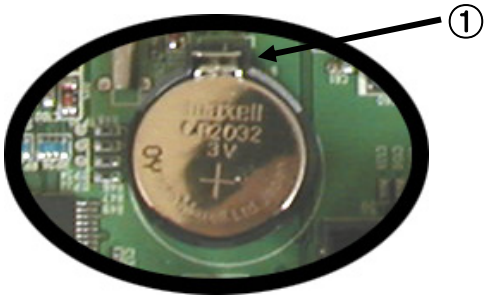
● Connect with AC110V if AC selector is as left picture.

● Connect with AC220V if AC selector is as left picture.

● Move select switch from the right to the left for selecting power.

⚠ See service instruction before connecting to the supply.

2) How to change battery



● For putting the battery in, please push the battery until you hear the locked sound.
For changing the battery, push ① as shown above picture.
(Please use 3V lithium battery.)

⚠ CAUTION
Risk of explosion if battery is replaced by an incorrect type. Dispose used batteries according to the instructions.

3) How to change Fuse

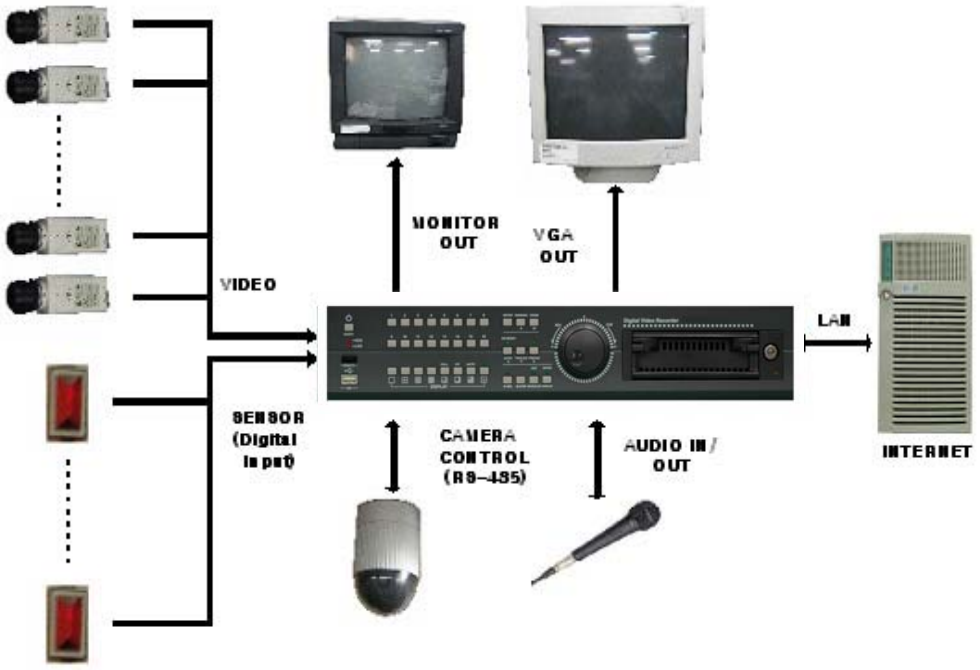
● Please take off the power cord from the DVR when changing Fuse.
Please use a rated fuse F1 : T6.3AH 250V

3. Explanation and Application

3.1 Basic Schematic of the DVR System

: This system can record up to 16 asynchronous video signals.
Ability to check multiple screens during playback by using monitors & VGA units. It supports screen search, monitor, and remote control through the Internet.

3.1.1 Basic Schematic



Video signal of the input channel is 1.0 Vp-p on a 75Ω load. Loop-Out is changed to Hi-Z Automatically.

3.1.2 Explanation of Schematic

- Able to input up to 16 video signals asynchronously.
  Possible to connect with the other devices via Loop-out.
- Monitor output have 2 ports and spot output has 1 port.
- AUDIO : Able to record sound signals (MIC or LINE) of a channel.
- RS-485 : Camera Control. (Pan,Tilt, Zoom, Focus)
- LAN : It is used for internet connection for remote control and image search of the product from a remote location.
  Comprehensive control of the system is possible from a remote location due to network setup.
- SENSOR IN : This is the sensor input for external input.
  Enables diverse event setups by sensor input.
- ALARM OUT : This is the sensor output for signal transmission to other devices.
- Supports video signal such as VGA, S-VGA for the product operation check.
- Able to connect with USB FDD or USB ZIP Driver.
- Able to connect with external IEEE 1394 HDD.

! Please turn off the power when you connect external IEEE1394 or USB with DVR for the purpose of avoiding damage. After power off, connect IEEE1394 or USB device and then turn on the power.

! If you reset DVR, you have to power off the IEEE 1394 or USB device.

3.2 Basic Connection

USB Connector

RS-485 Connector

LAN Connector

IEEE 1394 Connector

SENSOR IN, ALARM OUT Connector

VIDEO INPUT Connector

VGA OUT Connector

S-VIDEO Connector

MONITOR OUTPUT Connector

SPOT OUTPUT Connector

AUDIO INPUT Connector

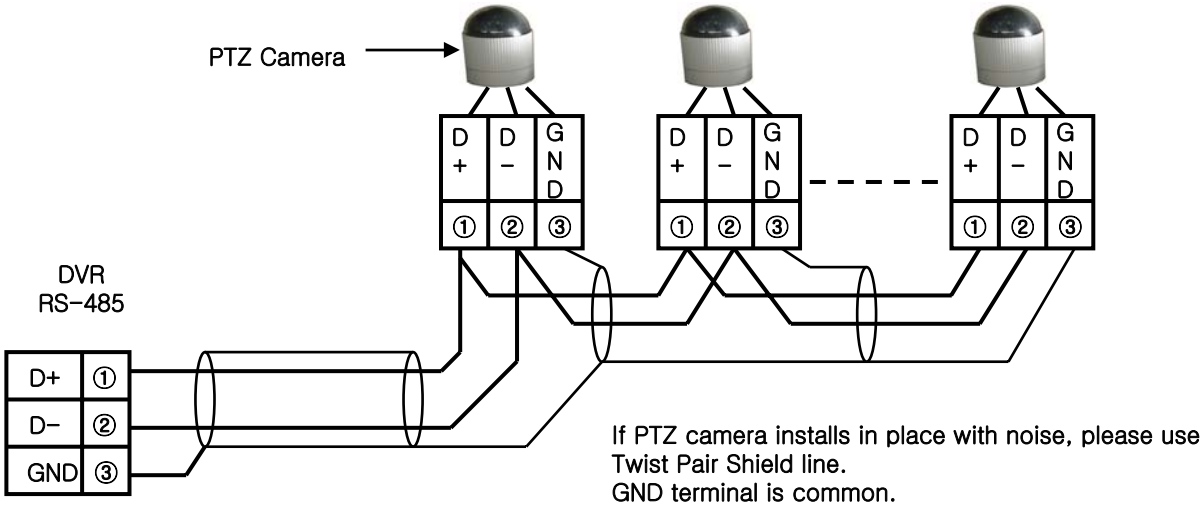
AUDIO OUTPUT Connector

3.3 Pan/Tilt Camera Connection and Control

It is possible to control the Pan/Tilt camera without special devices.
The Pan/Tilt camera supports RS-485 and is given an ID for parallel connection.
Easy to install from the graphic screen and possible to control by using the Jog Shuttle.

3.3.1 Pan/Tilt Camera Organization

Most of Pan/Tilt camera connections are linked with a power connection, control terminal connection, and video signal output connection.



Pan/Tilt Camera Connection

- Camera power connection : Motion power connection.
- Control terminal connection (RS-485) : Connects DA(D+), DB(D-), GND.
- Video signal connection(Composite)
  : Checks video mode (NTSC/PAL) and inputs video signals at each input terminal.

3.3.2 How to Setup

	Pan/Tilt Camera Installation	DVR Installation
1. Installation	To install Pan/Tilt camera, select model name on Camera Setup of the menu	
2. ID Setting	Install ID value independently, 1~255	Sets camera ID to camera setup and tests motion
! You must to use the same product !		

3.3.3 Control (RS-485)

General Pan/Tilt camera controls Pan/Tilt, Zoom, Focus, Iris by using 6byte command format as per the following.

[Baud rate : 9600 // Start bit : 1 // Data bit : 8 // Parity : None // Stop bit : 1]

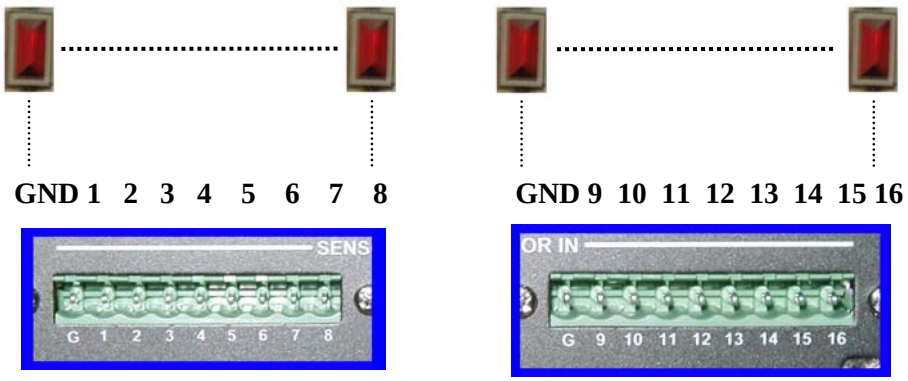
Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6
Receiver ID	Transmitter ID	OP Code	Data 0	Data 1	Check Sum

[Please special request if the product driver is not registered.]

3.4 External Product Connections and Applications

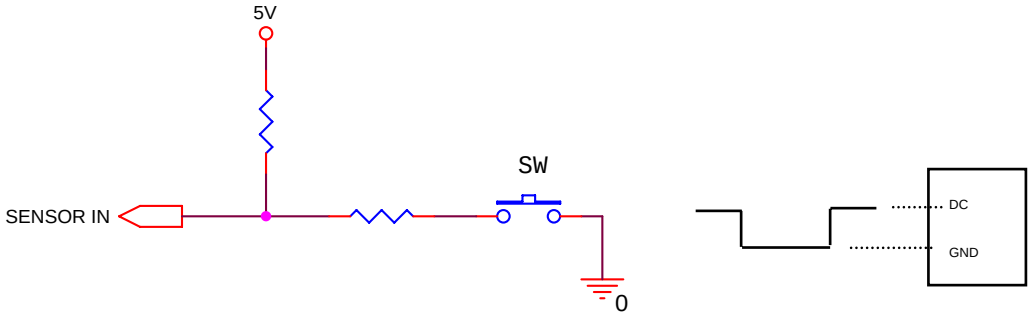
3.4.1 External Product Connection of SENSOR INPUT and Application

There are 16sensor jacks for external devices.
Able to set up REC ON/ OFF and Digital out motion according to SENSOR IN signals.



SENSOR IN 1 SENSOR IN 2

Connection Diagram



Common GND

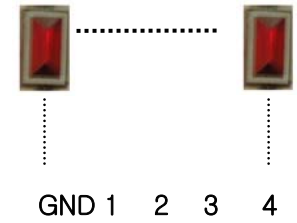
Circuit Diagram

Each SENSOR IN should be connected with GND which is grounded by TTL or contact point.

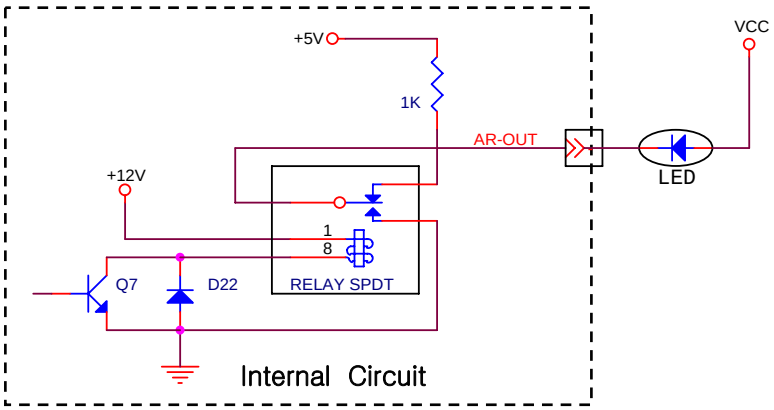
Sensor In and Alarm Out ports must be used indoors. This product prohibit to use outdoors. Because it can be damaged by lightning.

3.4.2 External Product Connection of SENSOR OUT and Application

Supports up to 4 separate sensors for motion control or alarms.
Possible to install output-events to each out terminal from the menu.



Connection Diagram



Circuit Diagram

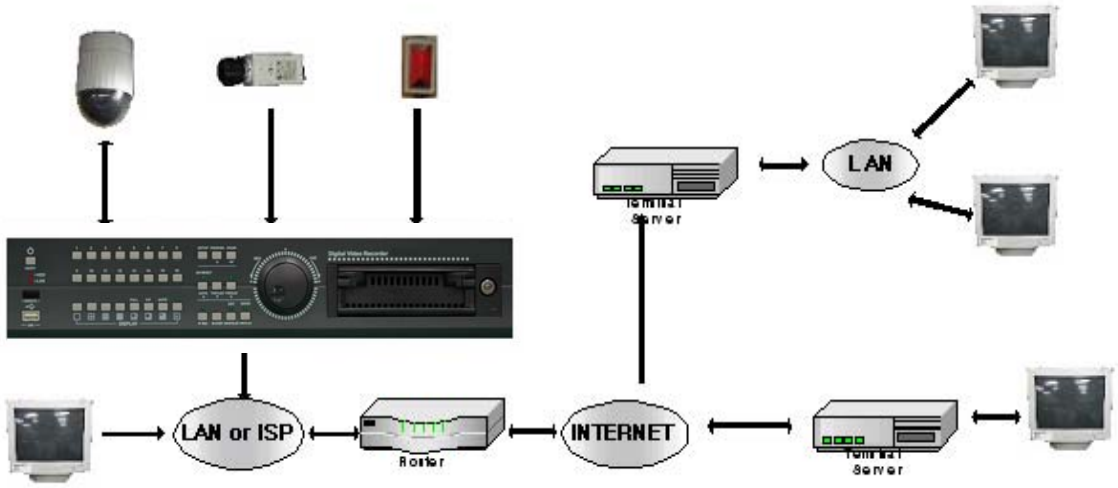
OUTPUT EVENTS
Digital inputs to jacks 1~ 16, Full Disk, Signal Loss, Power Off, Network Access, Floppy Access, Motion Detect.

Maximum output current is 0.1A. Damage may occur if output is higher!

3.5 Installation and Application for Network Interface

3.5.1 Connection and Installation for Remote Control

Supports Web server, remote control, and remote file transfer due to 10/100mega Ethernet I/F.
If you install the network as follows, you can use it soon after connecting to the network.



Organization of Remote Control

3.5.2 How to Connect by Domain

If you use dynamic IP, you can connect to DVR with a fixed IP by using dynamic DNS.
Refer to "Network=>More info" about present domain information.

3.5.3 How to Setup Static IP

1) Connect Network line, which has a fixed IP, by using the hub.

2) Set up system network at the Setup Menu.

Main Menu → System Setup → Administration → Network Setup

3) Link web browser which supports JAVA Applets. (Explorer 5.0, Netscape etc.)

4) After Network set-up, you can use at once.

3.5.4 Network Setup

xDSL
DHCP
Static IP : ___.___.___.___
Subnet Mask : ___.___.___.___
Gateway : ___.___.___.___
DNS Server1 : ___.___.___.___
DNS Server2 : ___.___.___.___
Web Sever Port Number :___

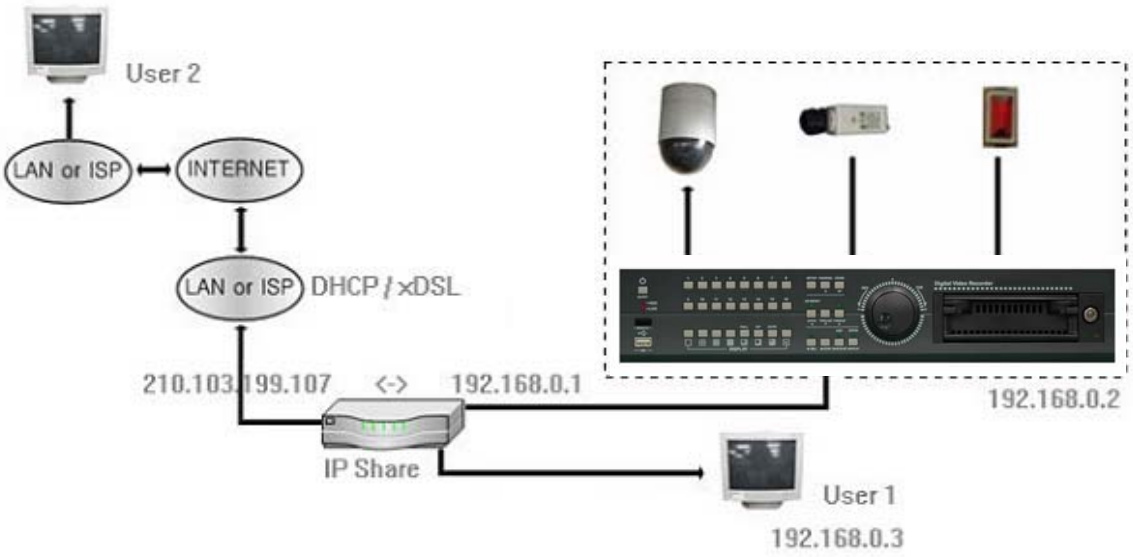
We highly recommend you consult the Network Manager.

Please refer to Page 72.

3.5.5 Network with IP Share

If you want to use IP share, please check the DHCP which is in Network Setup of Menu.

You can contact DVR by IP or domain. However, User 1(see the blow picture) can contact IP only, not a domain.



Note

- IP Address : This is the name of the product in TCP/IP.
  You can use any IP in one Network.
  If you want to link with the Internet, you need an official IP address to avoid duplication.
- Subnet Mask : It is 32 Bit in length. (= Address Mask)
- Gateway : This is used for connecting to the Network, which has a different structure and Protocol.
- DNS : It is a link system for easy connection to the Internet.
  For example, you can use an alphabetic address, e.g. www.company.com instead of a number address.
- We highly recommend you consult the Network Manager.

3.6 Application of Remote Control

3.6.1 Using the remote control

This is for viewing live or searching playback screens from a remote location.
[Quality of the live screen depends on the recording quality and Internet feed.]

How to Setup

1) Start browser.
(We highly recommend CPU : over 500MHz, RAM : over 64MB,
OS : over Win98, Browser : over Explorer 5.0)
2) Enter IP number in the homepage address.
(Use Domain name)

If the icons are not displayed as change the screen, please check the menu bar on the web site as followings.
Tools → Internet Options → General → Temporary Internet Files
Settings → Check for newer versions of stored pages → Automatically

If Record/Web Select is not selected on the menu, live monitoring is not possible to see on the Web Browser.

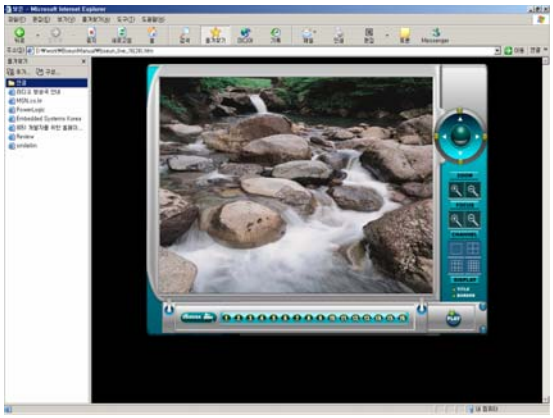
When selecting divided screen, the screen display is possible to delay due to network condition.

3.6.2 Web Browser

This is for wire internet by using computer.

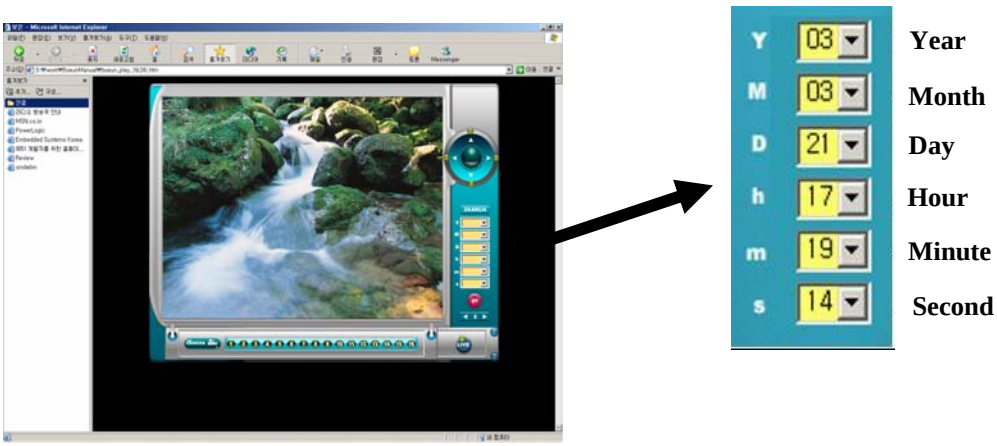
Web Browser

3.6.3 Live Screen Search



This is for searching 1, 4, or 16 channels simultaneously from a remote location.
It is possible to control the Pan/Tilt camera, which allows to set
up the position of the Pan/Tilt camera from a remote location.
► Pan/Tilt control : Possible to PAN, TILT and ZOOM by clicking the button on the web screen.

3.6.4 Playback Screen Search



This is for searching playback screens. It is possible to check date and time.

Note

- Remote monitoring is limited to 16 persons for assurance of the reliability of the system.
- Only one person is allowed to see the web playback screen.
- Possible to delay because of system status.
- The reliability of remote monitoring is subject to the reliability of the Internet connection.
  (Try rebooting or resetting in case of Internet malfunctioning.)

Notice

If the product is being backed up by HDD in use, you will not be able to use the remote control function.(but live monitoring is possible.)

4. Function Explanation and Menu Setting

This system can set up the motion conditions of the camera, recording conditions, sensors, audio, and system settings from the monitor menu.

4.1 Front Button Explanation

4.1.1 Before Use

Make sure all the devices are properly connected as described in Chapter 2, then connect to the power source. This device uses voltage of AC 115V /230V.

Be sure to check the power source AC[115V/230V] before use!
This product tests itself after turn on the power.
(If problems are found, it reboots to 3 times.

After power is on, you will hear a slight buzzer sound, then it cycles through a self diagnostic test for 20~50 seconds.

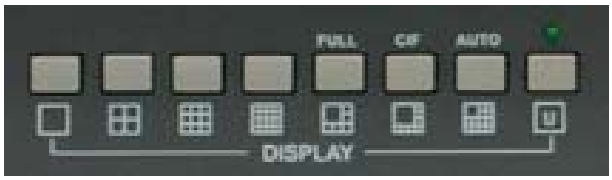
It automatically stores settings before shutting down. Therefore, it doesn't need to check for the setting every time providing there isn't any specific changes made.

If the system is down, it restarts automatically and returns to the status just prior to shutdown.

When you turn on/off the power, please use power switch on the front.
HDD can be damaged as you use main power switch on the rear.

4.1.2 Monitor Out

This product can simultaneously record while live monitoring. You can select a screen form by using the DISPLAY button and INPUT button.



- It displays the selected channel on the monitor by pressing the INPUT button during playback. It is used for selecting INPUT_CH at the MENU.
- Selected monitor configuration is displayed on the monitor "USER" button is for screen configuration, which is set up from the menu. 1,4,9,16,7,13 and 7 screen is displayed as pressing the DISPLAY button during playback.

● Alarm Reset button is for stopping the external alarm motion.

● AUTO Button is ON/OFF. As pressing this buttons, the divided screen is switched automatically.

4.1.3 REC

● By pressing this button, recording starts. REC button is on while recording. As pressing this button again, recording is stopped and LED is off.

4.1.4 PLAY

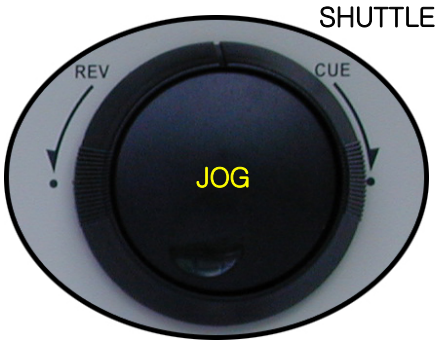
● Press this button to select playback condition. Play button is on while playing. (Refer to play mode for a more detailed explanation.)

● DISPLAY : It displays multi-screen when its' monitoring or playback.
As pressing this button repeatedly when its' monitoring, divided screen is displayed1/4/9/16/13/7/6 and as pressing this button repeatedly when its' playback, divided screen is displayed 1/4/9/16.

● PANORAMA : One playback screen is displayed with time slice on 16 divided screen. (Refer to FIGURE4.1.4 for a more detailed picture.)

● TRIPLEX : This is overlay screen. Background screen is monitoring screen and overlay screen is playback screen. (Refer to FIGURE4.1.4 for a more detailed picture.)

● ZOOM : It can be X2 zoomed at any mode.
Possible to zoom status by using X (◀▶) axis , Y (▲▼) axis and it is possible to move by using direction button in zoom status.



- JOG & SHUTTLE can search by frame in play mode by using JOG when it is paused (II) and possible to quick search by revolution speed of the shuttle.
- At the menu setting, the item is selected by using JOG and it is possible to move the position or change the value.

- When it's in PLAY MODE, it moves like the blow button mark. (REC, stop (■) / pause(II) / reverse play (◄) /pause (II)/ play (►))
- It moves as indicated by the symbol located above the button at the MENU. (EXIT, ENTER)

If you press the ENTER button after replay screen, it will be paused then you can exact search by a field using Jog. You can search quickly by using shuttle when its' replay and you can search slowly by using Jog.

4.1.5 Menu Setup

- You can easily change the Camera Setup, Recording Setup, and Audio Setup by the graphic user interface screen.

4.1.6 Explanation of Panorama and Triplex

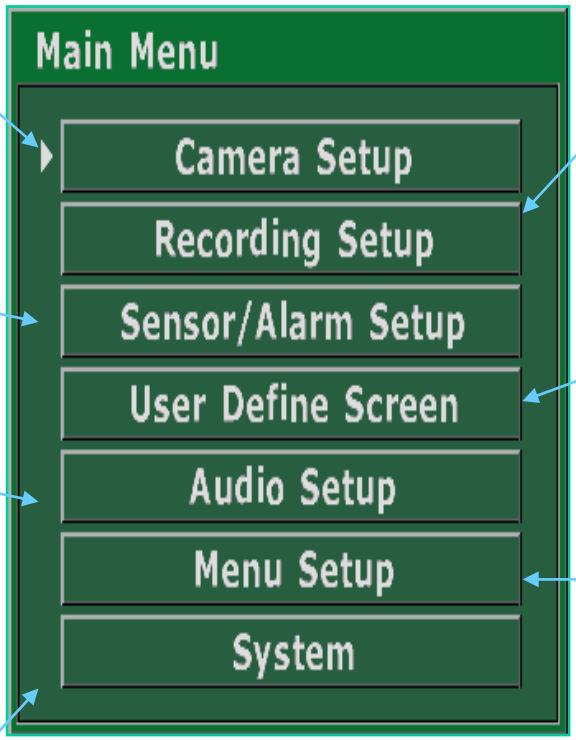
● PANORAMA : One playback channel is replayed to 16 divided screen as a time slice.
The channel which you want to replay will be displayed in a playback mode. It switched 1,4,9,16 screen as pressing the DISPLAY Button.

PANORAMA Playback Screen of 16 Channel

● TRIPLEX : This is Overlay screen. You can monitor live screen and playback screen at the same time. It is returned to playback screen as pressing the playback button (ENTER button) after setup monitoring channel you want to see.
If you want to change playback screen, press the CHANNEL button.

TRIPLEX Playback Screen

5. Main Menu



Control Camera, Camera Setup, Pan / Tilt of Pan/Tilt Camera.

Set up Sensor Name, Alarm Link and Alarm Buzzer.

Set up Audio Setup.

Log View
HDD Management
HDD Backup
Auto Select
Video Output
Administration
Factory Default
About System.

Set up Recording Channel Selection, Common Option, Schedule Events.

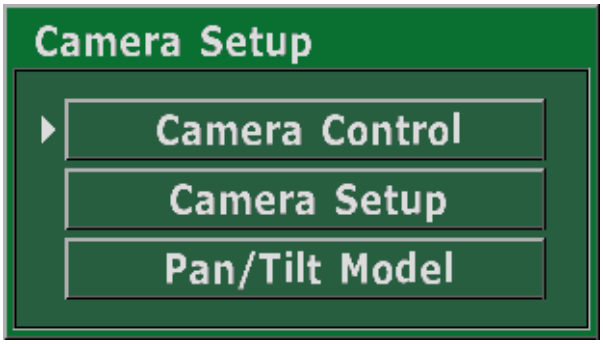
Select 8 screen group which is displayed when you press the "User" button.

Set up Language and Transparency.

Possible to change setting status to factory default values by using the Factory Default System Setup. (However, Clock, Network Setup, and Password are not changed.)

5.1 Camera Setup

It is possible to set up image which will connect at input port and able to set up Pan/Tilt camera which will connect with RS-485.



5.1.1 Camera Control

Make sure all of the Pan/Tilt cameras are the same manufacturer.
Use the cameras which are supported by the same protocol.

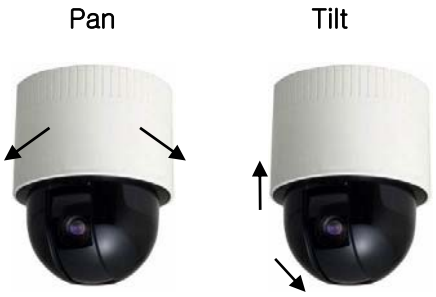
1) RS-485 enables long distance transfer.

2) Almost all control of the Pan/Tilt cameras is done via the RS-485.

3) Possible to connect in parallel.

5.1.1.1 Pan/Tilt Camera

Examples of Camera Rotation



Pan/Tilt Camera

5.1.1.2 How to Use

1) Checks camera ID setup value from the camera setup menu.

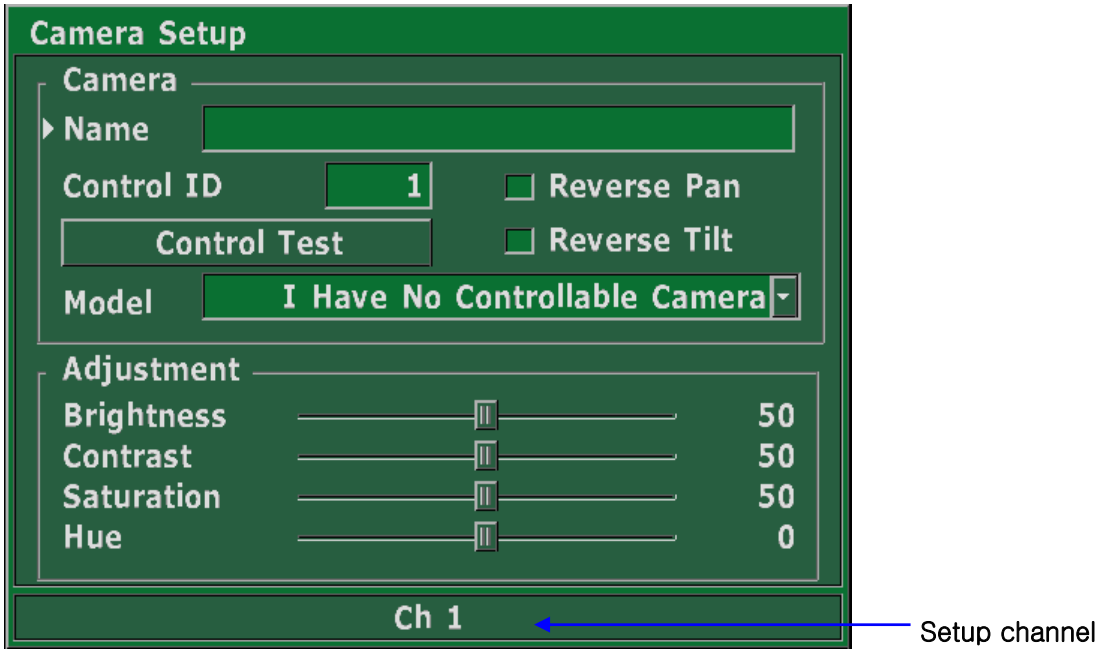
2) Selects Pan/Tilt Control from the menu.

3) Selects motion by Jog.

4) Moves shuttle left to right.
   Checks whether camera ID and Pan/Tilt camera ID are the same installation if the Pan/Tilt camera does not activate.
   Also, checks whether the control line of the Pan/Tilt camera is in the correct location.

5) Press the EXIT button to return to the normal screen.

5.1.2 Camera Setup



● Installs Name, Control ID (Pan/Tilt Camera), Model and Color (Brightness, Contrast, Saturation, Hue) of each channel.

5.1.2.1 How to Setup

1) Checks the channel number as indicated at the bottom of the tab, and then checks whether the background is the correct screen.
(The channel number can be changed by pressing the INPUT Number button.)

2) Selects contents which you want to change by jog.

3) Possible to change setup status by using the buttons as follows.

ENTER button	:	Change and complete selected contents.
EXIT button	:	Make cancellation.
◀ button	:	Move to left at the Nickname.
▶ button	:	Move to right at the Nickname.
Jog	:	Can change character and number by jog rotation.

4) To return to the preset menu, press the EXIT button.

5) If a Pan/Tilt camera is connected, test after setting-up the camera ID.

5.1.2.2 Camera Name

● Name : Possible to create an alphanumeric nickname of up to 16 characters (including symbols) as shown below.
You can see the next character repeatedly by Jogging.

Character Mark

```
Blank ! " # $ % & ' ( ) " + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
@ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
[ \ ] ^ _ ' a b c d e f g h I j k l m n o p q r s t u v w x y z { | } ~
```

How to Use

1) Selects Name by Jog.

2) Possible to write and amend if you press the ENTER button.

3) Writes and amends by using the RIGHT/LEFT button and Jog.

4) Complete by clicking the ENTER button.

5.1.2.3 Pan/Tilt Camera Setup

● Camera Setting : Control ID, Reverse Pan, Reverse Tilt, Control Test, Model

1) Control ID : For controlling the Pan/Tilt camera.
Setting ID is for separating the Pan/Tilt camera, which is connected in parallel.
Control ID uses 1~255 number.
(Be sure to check the specifications of the Pan/Tilt cameras.)

2) Reverse Pan, Reverse Tilt : It reverses a Pan/Tilt Camera direction.
Usually, the Pan/Tilt direction can be changed depending on the location and mounting of the Pan/Tilt camera.

3) Control Test : Possible to test whether Pan/Tilt Camera setup is correct or not.
Useful when checking after setup finishes.
All settings are automatically stored, so there is no need to change the setup as long as there is no special reason.

4) Model : Set up Pan/Tilt Camera to control for each channel.

5.1.2.4 Adjustment

● Possible to install each input video color (Brightness, Contrast, Saturation) value as a number 0~100 and Hue can be installed as a number -50~50.
Please, install a proper value for a background checking screen.

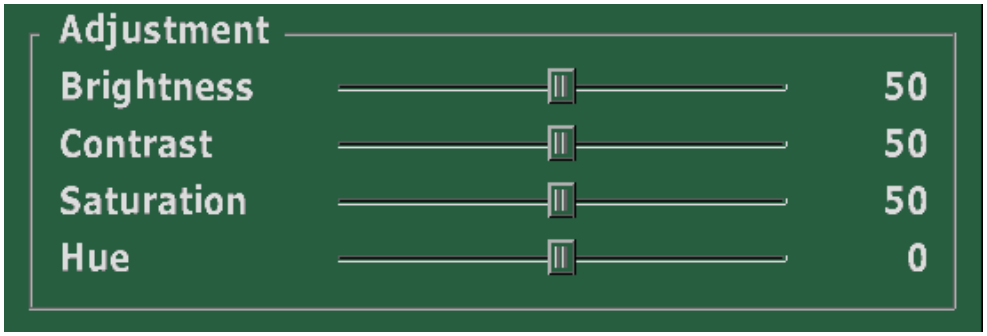
● How to Setup

1) Move to the desired position by using Jog.

2) If you press the ENTER button, the next image is displayed with video input.

3) Jog from left to right for changing the number. This is for color control.

4) If you select either the PLAY or EXIT button, setup is finished. After finishing setup, the previous screen is displayed.



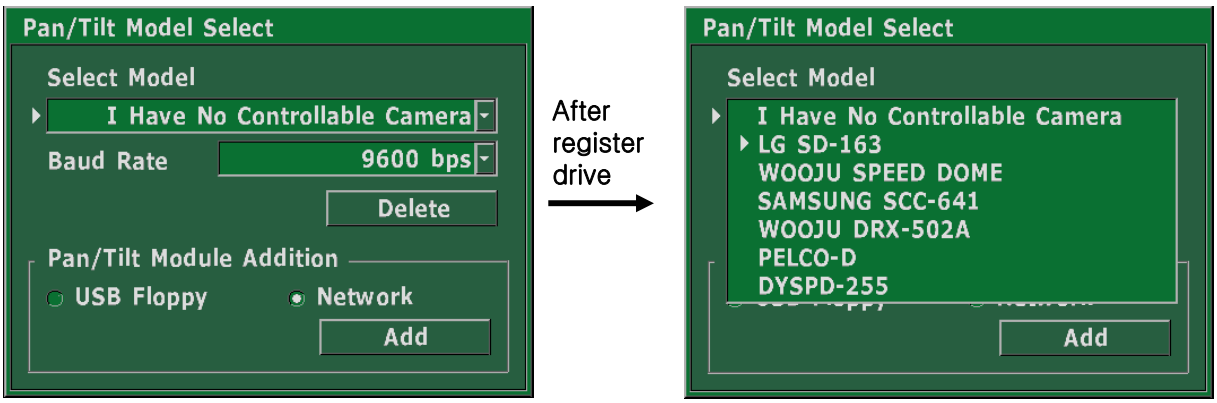
Brightness : Controls brightness.

Contrast : Controls contrast.

Saturation : Controls saturation.

Hue : Controls hue.

5.1.3 Pan/Tilt Model Select



No Registered Model

Selects one of camera which is registered driver

If Pan/Tilt model is not registered, ask the dealer from whom you purchased the unit.

Possible to register Pan/Tilt model through the external FDD or LAN if Pan/Tilt is not registered.

● How to Setup

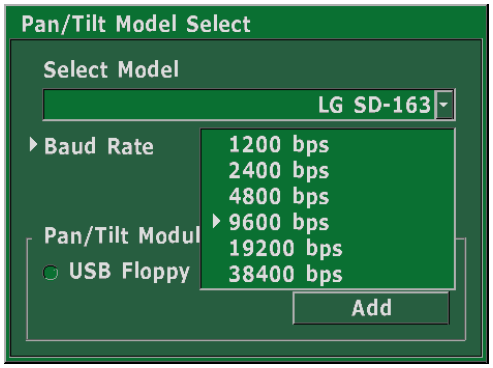
1) Connect the Pan/Tilt device to the RS-485 port.

2) Select the same drive, which is selected from the "Pan/Tilt Model Select" menu.
(If there is unusual motion and there is no drive, ask the dealer from whom you purchased the system.)

3) Select port to control.

4) Set-up the Camera ID at "Camera Setup".

5) Test it by using Camera Control.



● Sets up baud rate for each cameras (Factory default is 9600 bps)

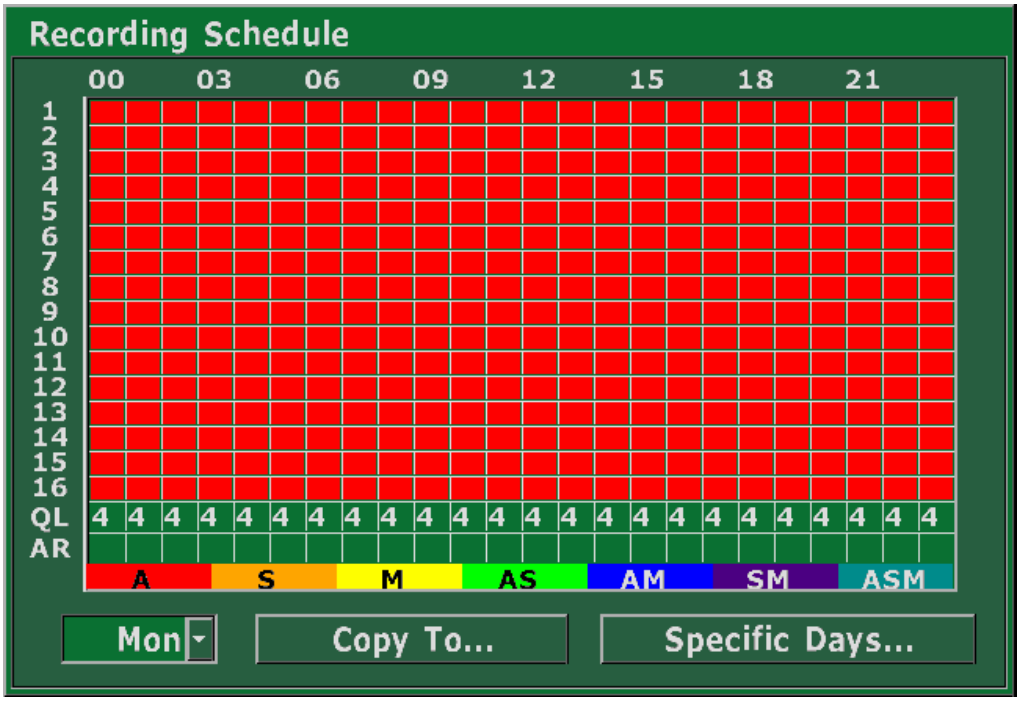
● Select port according to Pan/Tilt Model.
PORT A : RS-422
PORT B : RS-485

5.2 Recording Setup

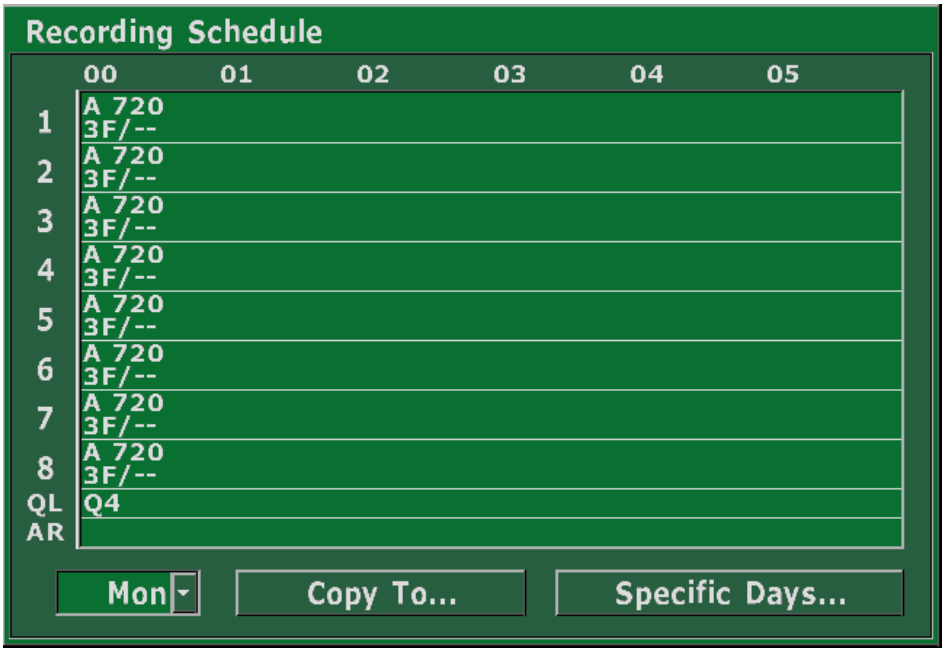
Able to setup content related with Recording Setup.

5.2.1 Schedule

- Able to schedule recording by weekday, time and channel.
- Able to schedule recording of specific date.
- Able to alternately see menu to view 24 hours and 16 channel schedule status on a screen and menu to view detailed schedule status if pressing the 'USER' button.
- Recording field rate is not displayed to view 24 hours and 16 –channel schedule status on a screen.



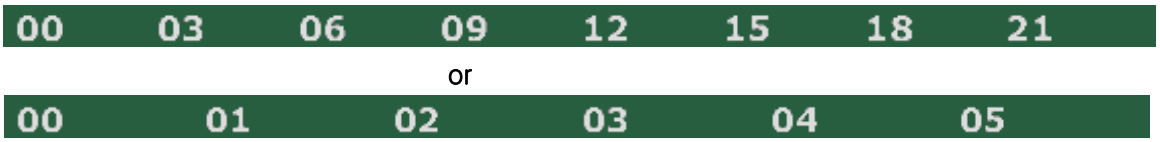
- Menu to view 24 hours and 16ch schedule status on a screen.



● Menu to view detailed schedule status.

5.2.1.1 Explanation of Recording Schedule

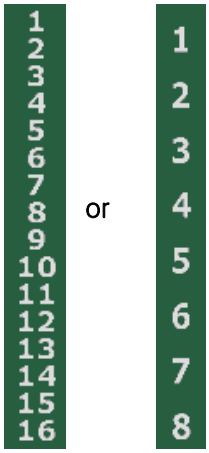
1) Time



or

● The above number indicate time. (00 ~ 21)

2) Channel



or

● The left number indicate channel. (1 ~ 16)

3) Quality Level, Alarm Recording

● QL indicates quality level as recording.
● AR indicates whether Audio Recording or not.

4) Recording Events

● A : Always Recording.
● S : Sensor Recording.
● M : Motion Recording.
● 360/720 : Recording Resolution.
● fps/fps : The first 'fps' means field rate of Always Recording, the second 'fps' means field rate of Alarm Recording/Motion Recording.

ex)

Always performs recording and 3fps recording in the 360 horizontal pixel numbers.

Perform Sensor, Motion Recording and 3fps recording in 720 horizontal pixel numbers.

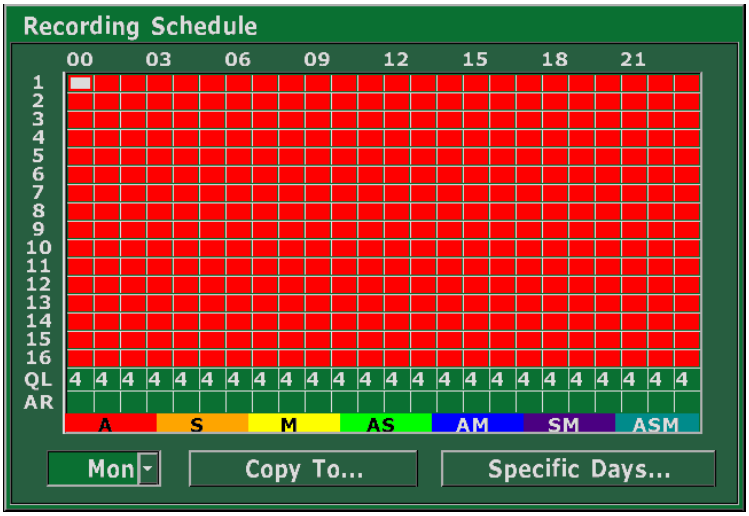
5.2.1.2 How to Setup

- Menu to view 24hours and 16ch schedule status on a screen.

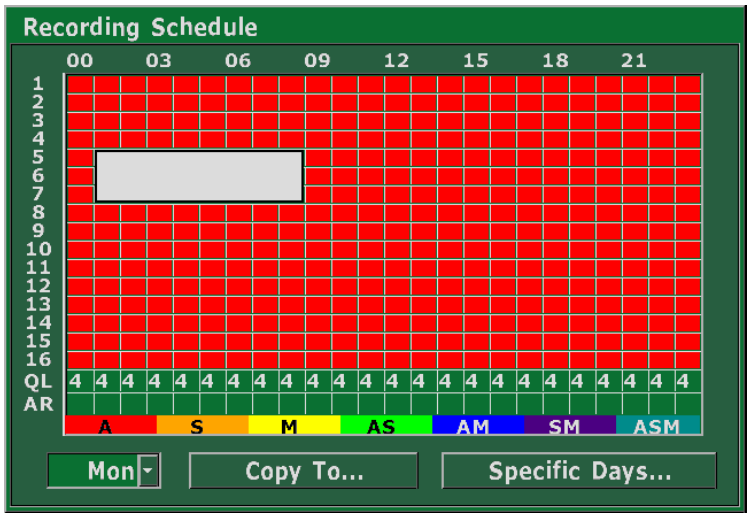
● Recording Schedule setup is don in block unit and 1 block means a hour at a specific channel.

● How to Setup Recording Schedule Block

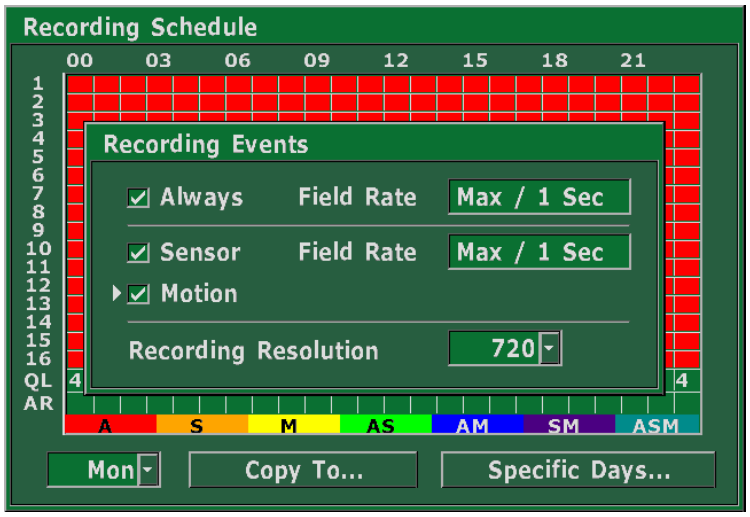
1) No.1 channel block is designed at 00 hour if pressing the 'ENTER' button.



2) Move to the block to change schedule by using the up, down, left and right button. Designate group by using the up, down, left and right button while pressing the ‘STOP’ button in order to select various buttons at a time.

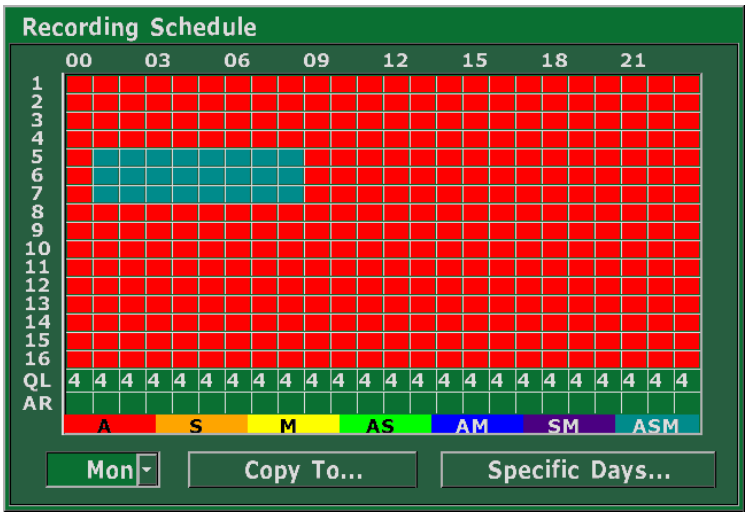


3) Able to setup the Recording Event as below if pressing the ‘Enter’ button with group designated.



● Always : Always performs recording operation in case of Recording Time.
Sensor : Performs recording when the selected SENSOR IN comes in.
Motion : Performs recording within the setup screen of channel.

4) You can be aware of that color of the block whose schedule is changed after setup.



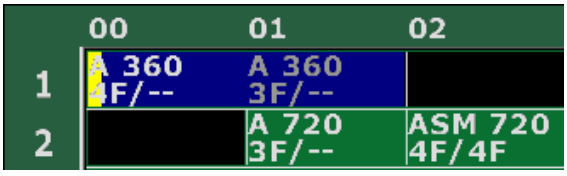
● QL, AR, weekday, Copy To..., Specific Days...are explained in detail below 5.2.1.4

● Menu to view detailed schedule status

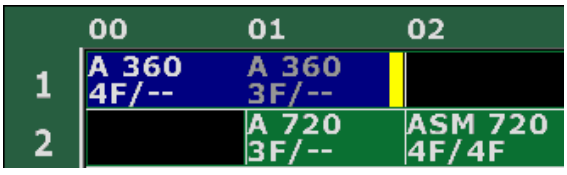
- Recording Schedule is set up in block. Minimum block is an hour.

- How to Setup Recording Schedule Block

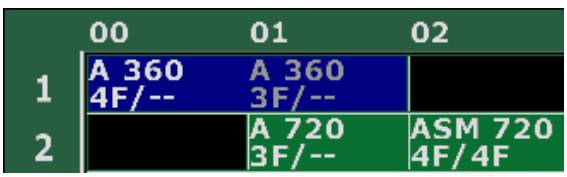
1) As using left/right direction button, designates time block at the same channel. As using up/down direction button or jog, designates channel block at the time zone of 0 hour.
2) As pressing one of 'DISPLAY' button at the block to change, the following picture will display in order.



● Appears yellow bar at the left of block.

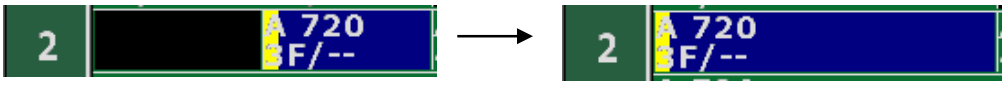


● Appears yellow bar at the right of block.

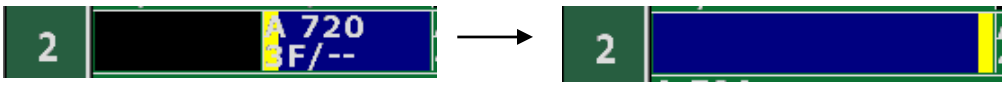


● Disappears yellow bar at the block.

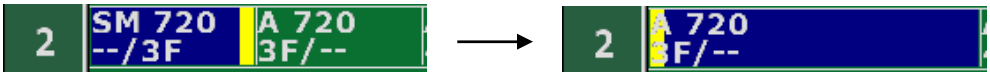
3) As pressing the left button in case yellow bar is at the left of the block : The block extends for at hour and extended time is set up as Recording Schedule of present block.



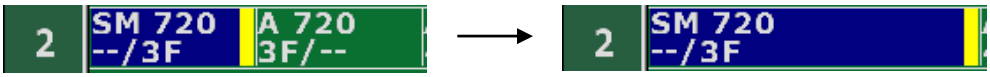
● When the yellow bar is located in the left side of the block and you press the right arrow button, then the source configuration in the block will be deleted (reduced) and the configuration in the deleted block will follow the configuration in the left block. (But, if the current block is located in the most left side, then the configuration of deleted block will follow the default setting.)



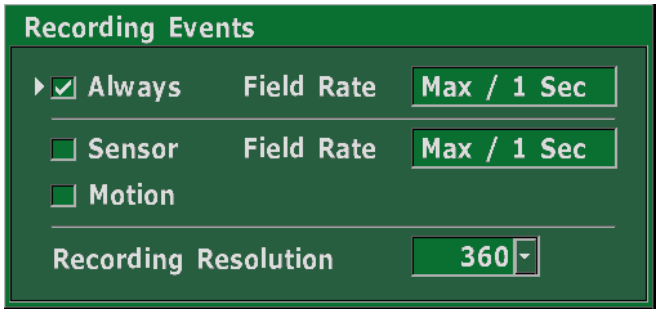
● When the yellow bar is located in the right side of a specific block and you press the left arrow button, then the source configuration of the block in the right side of the current block will copied (expanded) (But, if the current block is located in the most right side, then the configuration of deleted block will follow the default setting.)



● When the yellow bar is located in the right side of a specific block and you press the right arrow button, then the source configuration of the block in the current block will be copied (expanded) to the right block.



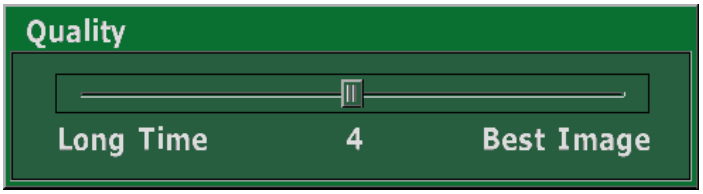
5.2.1.3 Recording Events



● When you select a specific block and press the 'Enter' button, then you will be able to set the configuration as above.

● Always : Always Recording
Sensor : Sensor Recording
Motion : Motion Recording (The area designated will follow the configuration in Menu setup.)

5.2.1.4 Quality



- When you place the bar in QL and press the 'Enter' button, then you will be able to configure the Recording Quality.
- Quality setup range : 1 ~ 7
- Quality could be set up according to time table such as Schedule.

5.2.1.5 Audio Recording

- When you place the bar in AR and press the 'Enter' button, then you will be able to select Audio Recording On and Audio Recording off as below.

or

- Audio Recording On

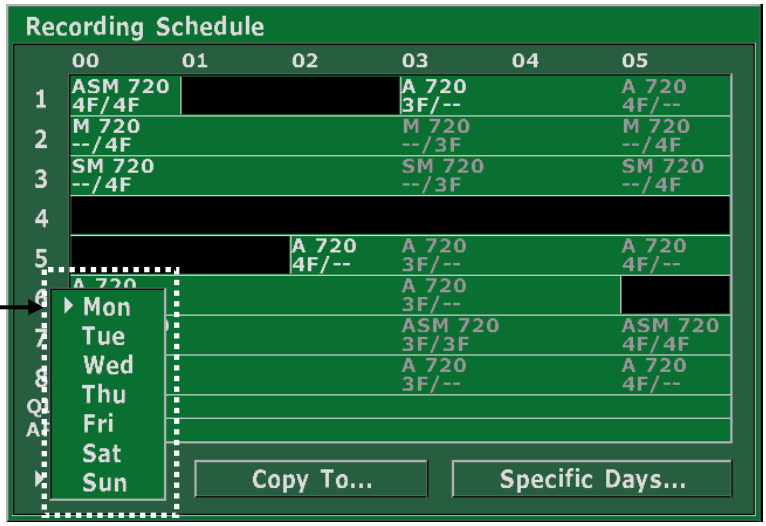
or

- Audio Recording Off

- Audio Recording could be set up differently according to time table by using Display button such as schedule.

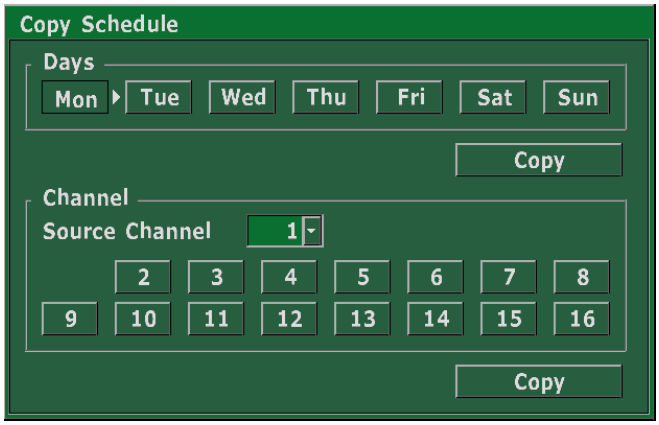
5.2.1.6 Setup Days of the Week

- Possible to select a day of the week for changing REC schedule by using Enter and Jog.



- You can select a day to configure the recording schedule using Enter button and Jog dial.

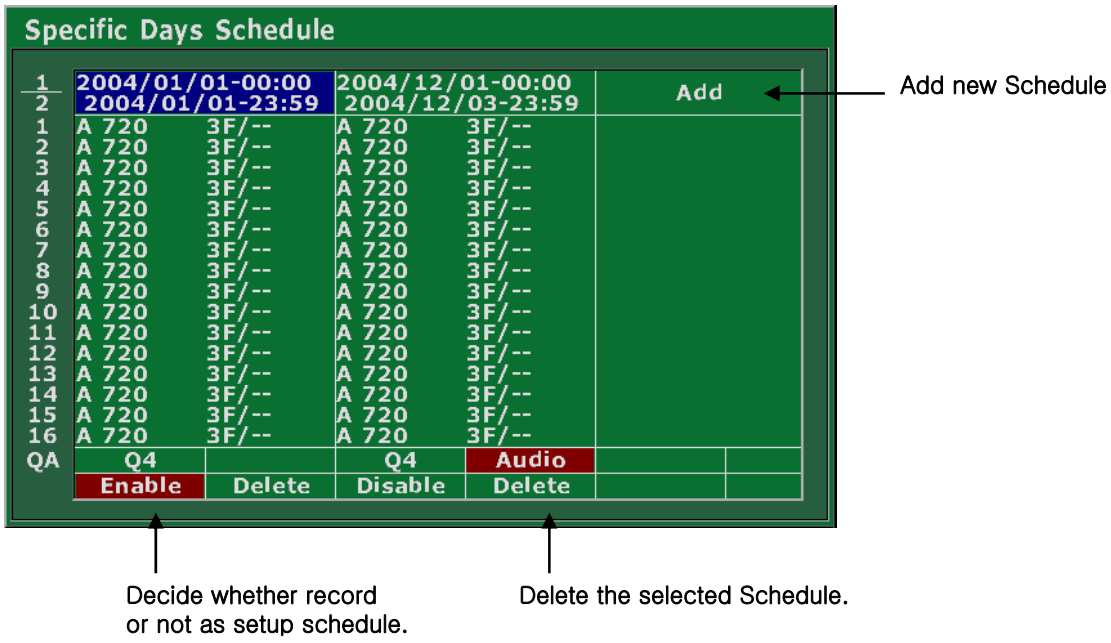
5.2.1.7 Copy Schedule



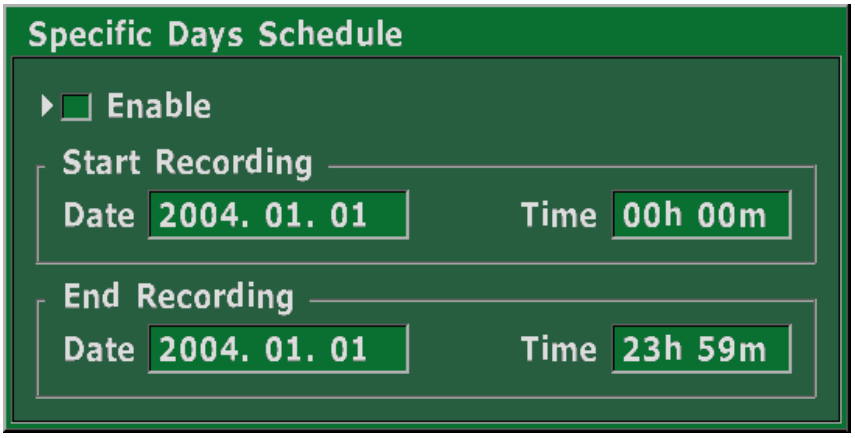
● You can copy the recording schedule configuration of a specific day of the week to other days of the week.

5.2.1.8 Specific Days Schedule

● You can configure the recording schedule of a specific day of by pressing 'Enter' button in the 'Specific Days...'

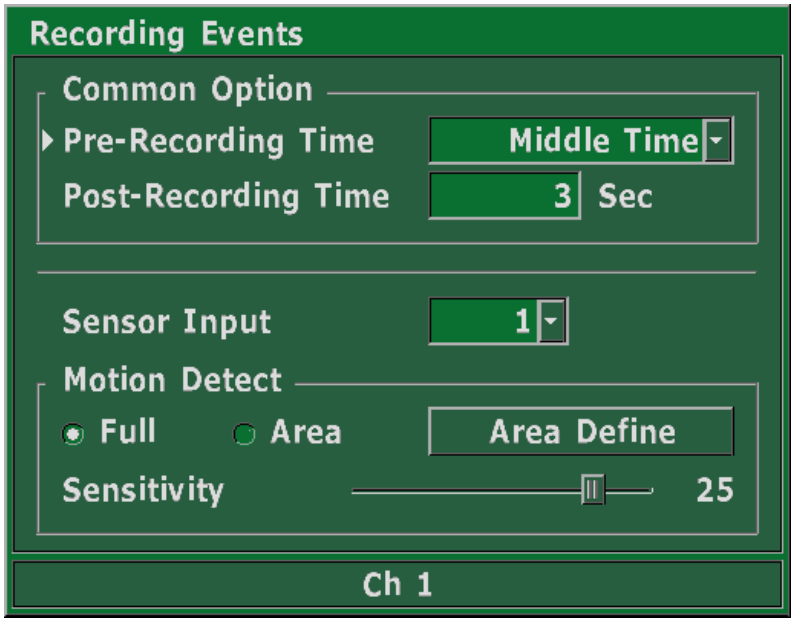


● Using the left/right arrow buttons and the 'Enter' button and selecting the 'Add', you can add and configure new Specific Day Schedule up to max 16.
● Using the up/down arrow buttons and the 'Enter' and jog dial and selecting the 'Disable/Enable' you can decide if you will record it according to the configuration of recording schedule, or not.
● Using the up/down arrow buttons and the 'Enter' and Jog dial and selecting the 'Delete', you can delete the configured recording schedule.
● QA : Q means quality level when recording and A means Audio Recording.



● You can set the start and the end time of the schedule recording for the specific day.

5.2.2 Recording Events



5.2.2.1 Common Option

● Setup record time before and after occurrence of event when Sensor / Motion Event occurs.

● How to Setup

1) Move to the place you want to change setup by using Jog.

2) Select the recording quality from the menu by using the ENTER button and LIST BOX as displayed below.

Quality : 7 levels
Prev Time : Long Time, Middle Time, Short Time
Post Time ; 1~99 sec

It is recording the highest Frame/Sec automatically.

Before Time is a little different according to System mode.
Usually, Long/Middle/Short Time is divided 1~5sec by 3.

3) Setup menu is automatically applied to move to the previous menu.

● Recording is stopped for a sec after Record Select setting.

5.2.2.2 Sensor Input

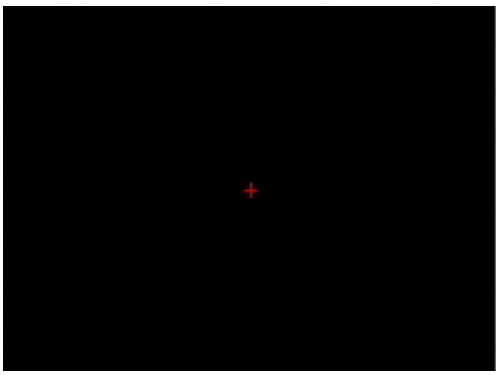
● Sensor : Selects Sensor Input (1-16).

5.2.2.3 Motion Detect

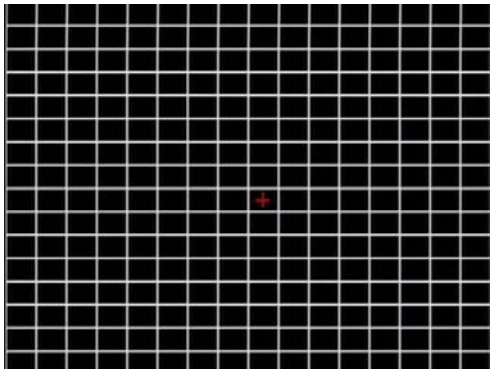
● Motion Detect : Set up Motion Detect.
Full : Recording starts when motion is detected in full screen.
Area : Recording starts when motion is detected in selected area.

● Field Setup

Field can set up by Jog and direction buttons. The following image is a preset screen of the field setup when selecting full and area.



Full



Area

● How to Setup

ⓐ Jog direction of field setup.

Jog Direction	X-axis Direction Button	Y-axis Direction Button
↘	↔	↕

ⓑ The user field setup is moved to the place by jogging. The first location and the last location can be selected by clicking enter.

ⓒ Area field setup is moved to the place by jogging and can check the field by using ENTER.

ⓓ After setup is finished, move to the higher level menu by clicking EXIT.

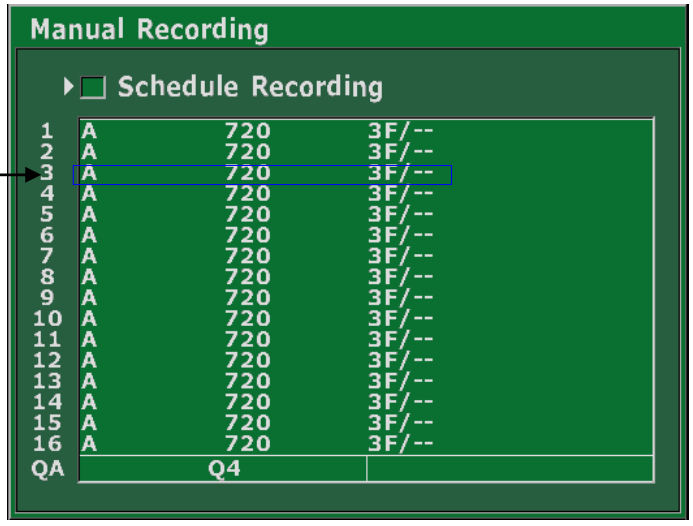
● Possible to set up Sensitivity at the Motion Detect (1~ 30)
Motion is detected in proportion to sensitivity value. Factory default value is the standard motion detection sensitivity.

● The recording stops for about 1 second after setup.

5.2.3 Manual Recording

Manual Recording is for setup recording condition of each channel as pressing REC button when it is not recorded according to schedule.

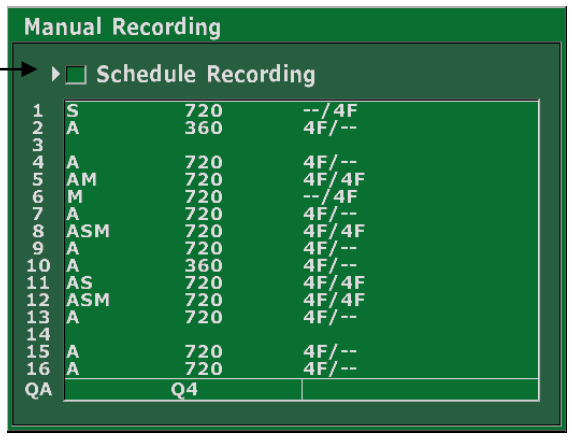
● Press the ENTER key after select one by Jog then selected channel will be the blue bar like right picture.



● Possible to control recording for each channel as pressing REC buttons.

● As pressing Enter button after moving cursor to channel by using Jog, channel for setup will be changed blue bar as blow.

In case Schedule Recording box is checked, Manual Recording Is not working.



In case Schedule Recording box is checked, recording is proceed according to schedule regardless of Manual Recording. For using Manual Recording, do not check Schedule Recording box.

Recording is not started when Record check box is not checked. Must check Record check box for Manual Recording.

· A : Always Recording

· S : Sensor Recording

· M : Motion Recording

· fps/fps : The former 'fps' is field rate of Always Recording, the latter 'fps' is field rate of Alarm Recording/Motion Recording.

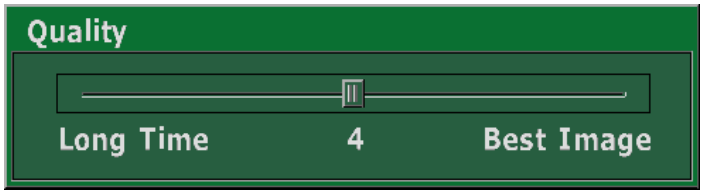
● As pressing 'Enter Key' at this mode, the blow menu appears for setup recording option.

5.2.3.1 Recording Events

● The way of setup is the same with Schedule Recording.

● Press the EXIT button after finish setup then possible to return Schedule Recording.

5.2.3.2 Quality



- As same as Schedule Recording, when press the ENTER button at QL, possible to set up Recording Quality.
- Setup range : 1 ~ 7.
- After setup, press the EXIT button to return previous menu.

After setup conditions, recording is stopped for about 1 second to reset program.

After Recording Schedule setup, it is not recorded for a second for reset up program.

As each input line is selected, the maximum recording Frame/Sec is changed as in the below table. (Only for NTSC)

1CH → 30F/S	2CH → 30F/S	3CH → 30F/S	4CH → 30F/S
5CH → 15F/S	6CH → 15F/S	7CH → 15F/S	8CH → 15F/S
9CH → 10F/S	10CH → 10F/S	11CH → 10F/S	12CH → 10F/S
13CH → 7F/S	14CH → 7F/S	15CH → 7F/S	16CH → 7F/S

[Table 1.1] NTSC, Horizontal Pixel : 360, unit :Field/Sec

As each input line is selected, the maximum recording Frame/Sec is changed as in the below table. (Only for PAL)

1CH → 25F/S	2CH → 25F/S	3CH → 25F/S	4CH → 25F/S
5CH → 12F/S	6CH → 12F/S	7CH → 12F/S	8CH → 12F/S
9CH → 8F/S	10CH → 8F/S	11CH → 8F/S	12CH → 8F/S
13CH → 6F/S	14CH → 6F/S	15CH → 6F/S	16CH → 6F/S

[Table 1.2] PAL, Horizontal Pixel : 360, unit :Field/Sec

As each input line is selected, the maximum recording Frame/Sec is changed as in the below table. (Only for NTSC)

1CH → 30F/S	2CH → 30F/S	3CH → 15F/S	4CH → 15F/S
5CH → 10F/S	6CH → 10F/S	7CH → 7F/S	8CH → 7F/S
9CH → 6F/S	10CH → 6F/S	11CH → 5F/S	12CH → 5F/S
13CH → 4F/S	14CH → 4F/S	15CH → 3F/S	16CH → 3F/S

[Table 1.3] NTSC, Horizontal Pixel : 720, unit :Field/Sec

As each input line is selected, the maximum recording Frame/Sec is changed as in the below table. (Only for PAL)

1CH → 25F/S	2CH → 25F/S	3CH → 12F/S	4CH → 12F/S
5CH → 8F/S	6CH → 8F/S	7CH → 6F/S	8CH → 6F/S
9CH → 5F/S	10CH → 5F/S	11CH → 4F/S	12CH → 4F/S
13CH → 3F/S	14CH → 3F/S	15CH → 3F/S	16CH → 3F/S

[Table 1.4] PAL, Horizontal Pixel : 720, unit :Field/Sec

REC TIME LIST

- Maximum REC Field Rate : 60 F/S
- REC Screen Channel : 16Ch
- Resolution : 720 * 240

The file size of the right table is for general office.

REC Quality	File Size (KB)	Consumption /sec (KB)
7. Very Best	18	1080
6. Best(6)	17	1020
5. Very Good	15	900
4. Good	13	780
3. Very Normal	10	600
2. Normal	7	420
1. Long Time	5	300

Quality \ Term	3F/ 1S	2F/ 1S	1F/ 1S	1F/ 2S	1F/ 3S	1F/ 4S	1F/ 5S	1F/ 6S	1F/ 8S	1F/ 16S
Recording Condition HDD : 120 GByte, Audio Sampling Rate : 8 KByte										
7. Very Best	33	49	98	195	293	391	488	586	781	1563
6. Best	38	57	114	228	342	456	570	684	911	1823
5. Very Good	43	65	130	260	391	521	651	781	1042	2083
4. Good	49	73	146	293	439	586	732	879	1172	2344
3. Very Normal	65	98	195	391	586	781	977	1172	1563	3125
2. Normal	92	138	277	553	830	1107	1383	1660	2214	4427
1. Long Time	130	195	391	781	1172	1563	1953	2344	3125	6250
Recording Condition HDD : 120 GByte, Audio Sampling Rate : NONE										
7. Very Best	38	57	114	228	342	456	570	684	911	1823
6. Best	38	57	114	228	342	456	570	684	911	1823
5. Very Good	43	65	130	260	391	521	651	781	1042	2083
4. Good	49	73	146	293	439	586	732	879	1172	2344
3. Very Normal	65	98	195	391	586	781	977	1172	1563	3125
2. Normal	98	146	293	586	879	1172	1465	1758	2344	4688
1. Long Time	136	203	407	814	1221	1628	2035	2441	3255	6510
(Unit : Hour)										

(You can control recording quality from Recording Quality of the System Setup.
The above table is standardized general video signal. There is a difference depending on the contents of the video input.)

Recording data and time are changeable according to system operation or recording contents while recording.

REC TIME LIST

- Maximum REC Field Rate : 120 F/S
- REC Screen Channel : 16Ch
- Resolution : 360 * 240

REC Quality	File/Size (KB)	Consumption /sec (KB)
7. Very Best	11	1320
6. Best	10	1200
5. Very Good	9	1080
4. Good	8	960
3. Very Normal	6	720
2. Normal	5	600
1. Long Time	3	360

The file size of the right table is for general office.

Quality \ Term	7F/ 1S	3F/ 1S	2F/ 1S	1F/ 1S	1F/ 2S	1F/ 3S	1F/ 4S	1F/ 5S	1F/ 8S	1F/ 16S
Term HDD : 120 Gbyte, Audio Sampling Rate : 8 Kbyte										
7. Very Best	23	54	81	163	326	488	651	814	1302	2604
6. Best	28	65	98	195	391	586	781	977	1563	3125
5. Very Good	30	71	106	212	423	635	846	1058	1693	3385
4. Good	35	81	122	244	488	732	977	1221	1953	3906
3. Very Normal	47	109	163	326	651	977	1302	1628	2604	5208
2. Normal	56	130	195	391	781	1172	1563	1953	3125	6250
1. Long Time	93	217	326	651	1302	1953	2604	3255	5208	10417
Term HDD : 120 Gbyte, Audio Sampling Rate : NONE										
7. Very Best	26	60	90	179	358	537	716	895	1432	2865
6. Best	28	65	98	195	391	586	781	977	1563	3125
5. Very Good	33	76	114	228	456	684	911	1139	1823	3646
4. Good	37	87	130	260	521	781	1042	1302	2083	4167
3. Very Normal	49	114	171	342	684	1025	1367	1709	2734	5469
2. Normal	58	136	203	407	814	1221	1628	2035	3255	6510
1. Long Time	98	228	342	684	1367	2051	2734	3418	5469	10938

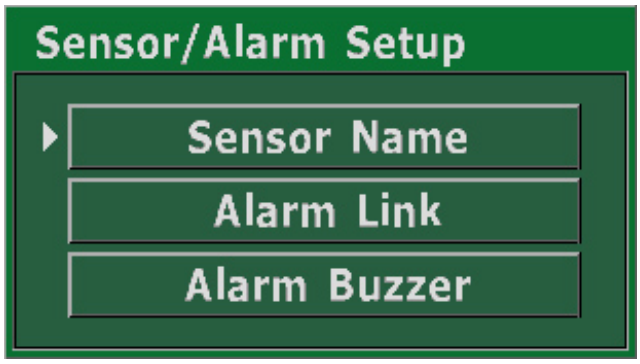
(Unit : Hour)

(You can control recording quality from Recording Quality of the System Setup.
The above table is standardized general video signal. There is a difference depending on the contents of the video input.)

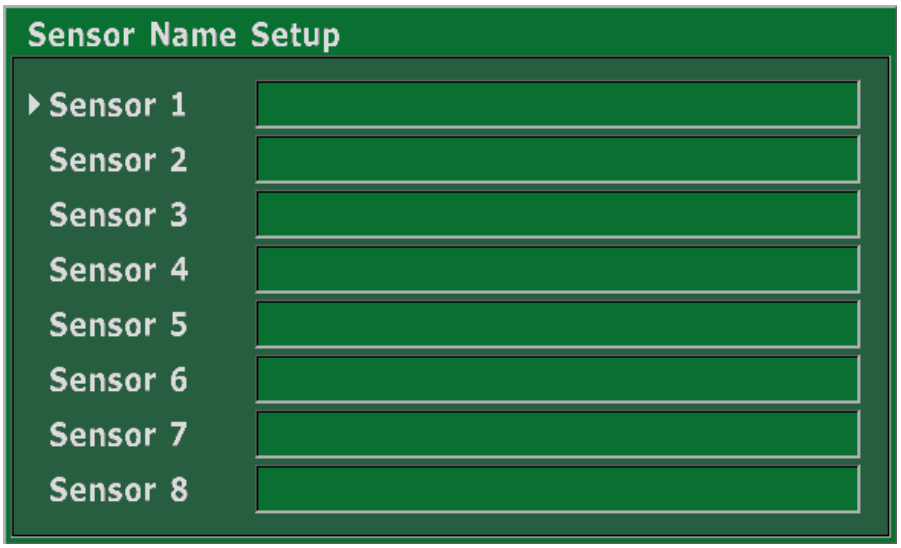
Recording data and time are changeable according to system operation or recording contents while recording.

5.3 Sensor/Alarm Setup

Sensor/Alarm Setup is used for connecting with external devices such as sensor or buzzer.



5.3.1. Sensor Name



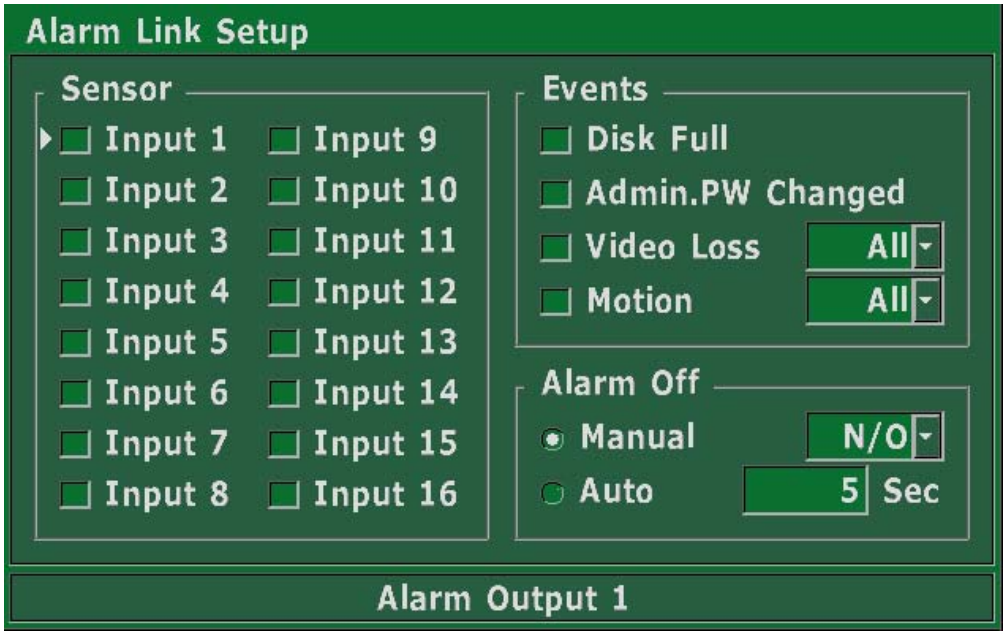
How to Setup

a. Select sensor channel by using Jog.

b. Selects name by using play, right/left, and jog.

c. As jog is rotated from right to left, characters change.
Possible to write up to 15 alphanumeric and symbolic characters.

5.3.2 Alarm Link Setup



● Events : Select condition of Alarm Out. Duplication is possible.
This product has Sensor Input of 16EA and Alarm Output of 4EA.

● How to Setup

a. Select Alarm Link CH by using INPUT CH button.
b. Select Alarm Output Number by using Channel Button(1ch~4ch).
(The above picture is set up Alarm Output 1. Alarm Output has 4 outputs.)
c. Check the conditions of Sensor, Events, Alarm off by using Jog and Enter button.
▪ Check the events you want to check at "Events".
- Disk Full : When HDD is full.
- Admin.PW Changed : When Admin. Password is changed.
- Video Loss : No video signal (Possible to select All or channel number.)
- Motion : When motion is detected. (Possible to select All or channel number.)
▪ Check the "Alarm Off"
- Manual : Alarm is off as you press the ALARM RESET button at the front.
- N/O,N/C : Set up basic output of Output.
- Auto : Alarm is off automatically after setup time is over.
d. Move to previous menu after finish setup by using EXIT button.

5.3.2.1 AR Reset

● How to off “Alarm”

Auto : Alarm is turned off automatically after setting time.

Manual : As press the Alarm button on the front, alarm is turned off.

Time (Min) : This is for selecting “Auto”. (Unit : Minute)

5.3.2.2 Sensor Events

Sensor In1~16 Disk Full Signal Loss Power Off Floppy Access Motion Detect

Contact point of the Alarm Out port is moved by selecting Sensor Events.
Refer to contents of external product connection. (Alarm Out is an open collector.)

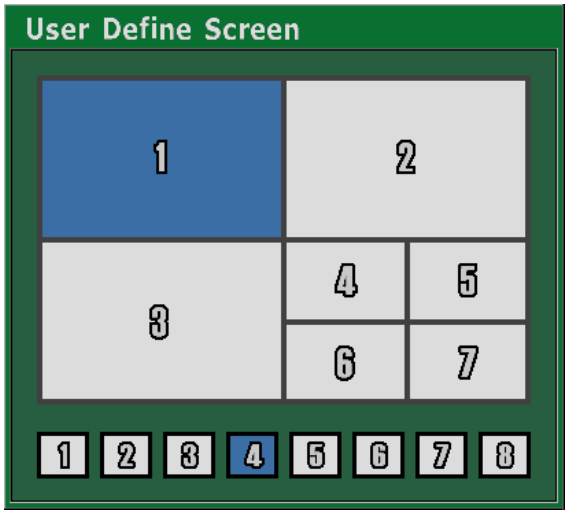
5.3.3. Alarm Buzzer

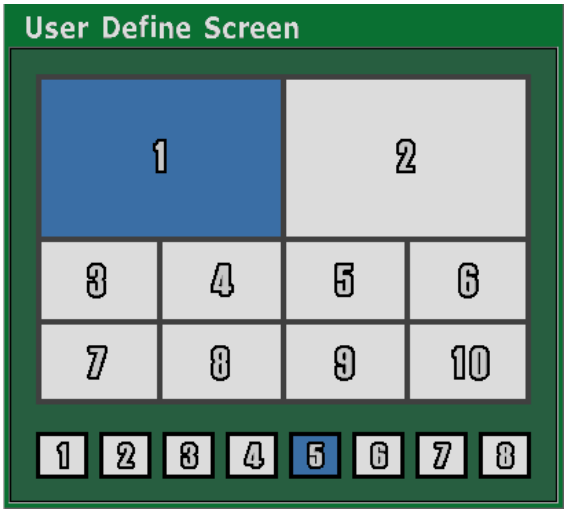
Make enable buzzer when Alarm is occurred.

Clear Time : Time for buzzer.

5.4 User Define Screen

User can organize the screen to your personal preference by using the user button.
It is very convenient if you use AUTO function at User Screen.

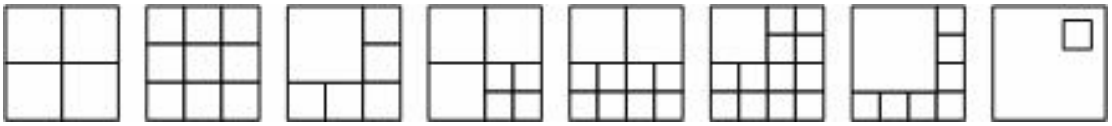




● How to Setup

1) Select one of 8 variations of multi-screen views by using Jog.

(NTSC : 8 Screen, PAL : 8 Screen)



2) As color is changed to blue, change the screen by using INPUT CH Button.

ⓐ Change by using the ENTER button.

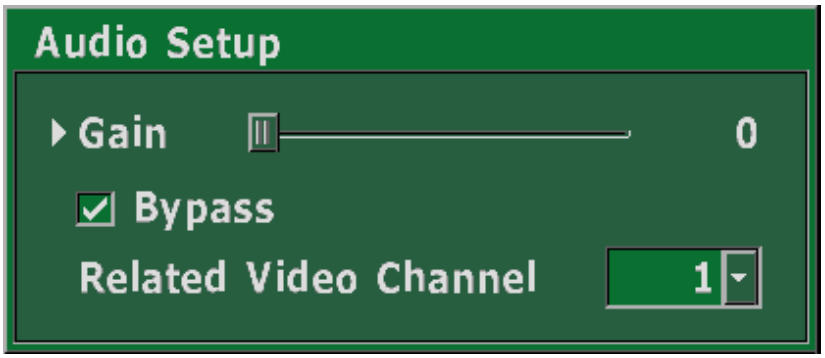
ⓑ Change the screen, which color is blue, by selecting the INPUT Button.

ⓒ Move to another screen by using Jog.

ⓓ After finishing, select either ENTER or EXIT.

3) After setting end, finish the menu and then press the “USER” button of screen button. User Screen will display as press the INPUT CH on USER SCREEN mode.

5.5 Audio Setup



- Audio is capable of recording one channel.
- Sampling Rate is 8 KHz.
- Bypass is possible to Audio Out as recording Audio.
- Gain is from 0 to 5.
- Audio can be recorded, provided that Audio of Channel Selection at Recording Setup is checked

● How to Setup

1) Selecting Audio Setup from the menu, displays the above picture.

2) Select “Bypass Audio”.

3) Select “Bypass Audio”.
You can hear sound from “Audio Out”.

4) For audio recording

① Select “Channel Selection” from the Recording Setup.
Check whether Audio is set-up or not.

② Select Channel of Related Video Channel from the Audio Setup.

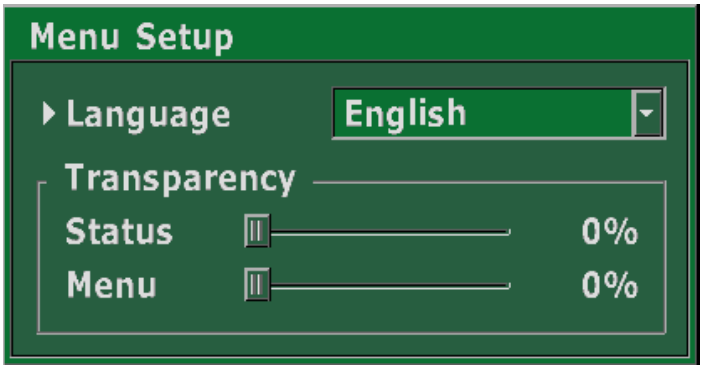
③ Check whether Channel of Related Video Channel is set up or not at Channel Selection of Recording Setup.

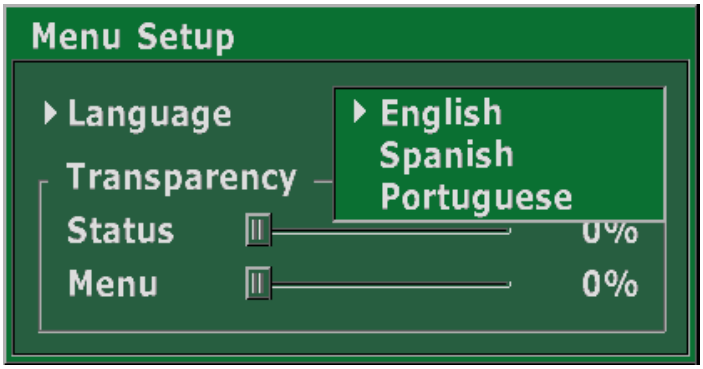
5) Finish by using either the ENTER or EXIT button.

6) Audio is recording as REC button is on.

This product is for video recording so quality of audio sound is lower than general audio product.

5.6 Menu Setup





- Can select Menu language such as English, Spanish, Portuguese.
- Status : It controls transparency of present status(channel name, recording status indicator, clock, indicator of HDD recording amount) which is displayed on screen. (0 ~ 80%)
- Menu : It controls transparency of Menu screen. (0 ~ 80%)

● How to Setup

1) Selecting Menu Setup from the menu, displays the above picture.

2) Move to the place you want to set-up by Jog.

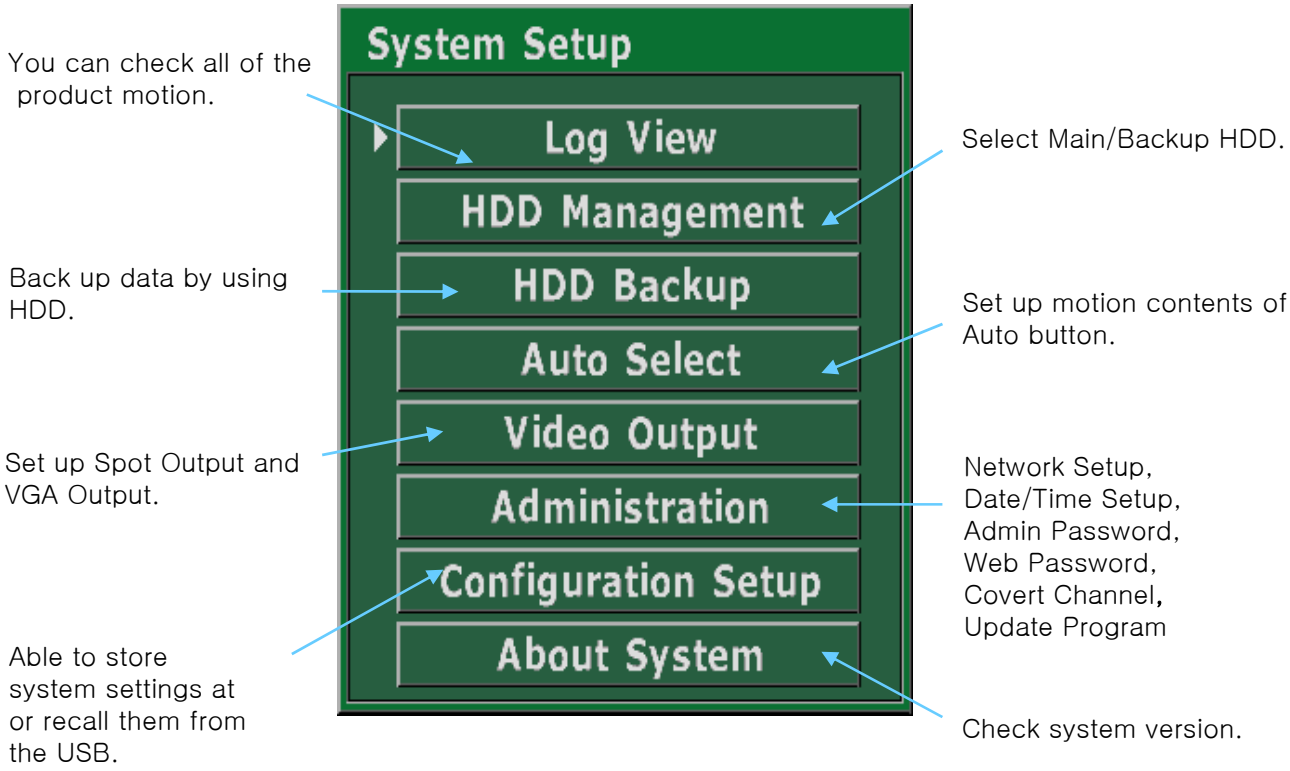
3) For changing language, press the ENTER button at Language and select the language.

4) If you change the value by jog as pressing the ENTER button after moving to Status, it controls transparency of present status(channel name, recording status indicator, clock, indicator of HDD recording amount) which is displayed on screen.

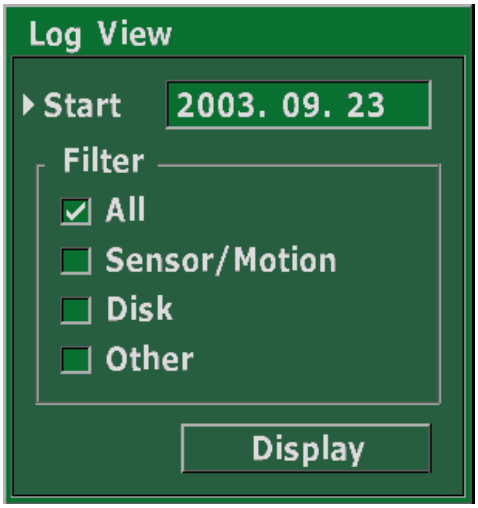
5) If you change the value by jog as pressing the ENTER button after moving to Menu, it controls transparency of Menu screen.

6) Finish setup by using either the ENTER or EXIT button.

5.7 System Setup


System Setup
Log View
HDD Management
HDD Backup
Auto Select
Video Output
Administration
Configuration Setup
About System
You can check all of the product motion.
Select Main/Backup HDD.
Back up data by using HDD.
Set up motion contents of Auto button.
Set up Spot Output and VGA Output.
Network Setup, Date/Time Setup, Admin Password, Web Password, Covert Channel, Update Program
Able to store system settings at or recall them from the USB.
Check system version.

5.7.1 Log View



- Log records all motions which happened on the system.
- Easy to use by using Date or Filter.

● How to Setup

1) Log shows all motions and setup contents while System is on.

2) You can check “Log” by the following :

① Set-up start date, which will be marked on the LOG, by Jog.
Select year/month/day by using the right/left button.
Change year/month/day number by using Jog.

② Select “Log Filter” for quick search.

③ Select “Display” button.

● Log Screen

Log screen contents are as follows:

Sensor In 1-16	Disk Full
Signal Loss	Power On/Off
Network Access	Menu Setup
Motion Detect	

● Log Screen Search

1) Possible to search from the Log Screen by using Jog. The sandglass is indicator waiting time for search.

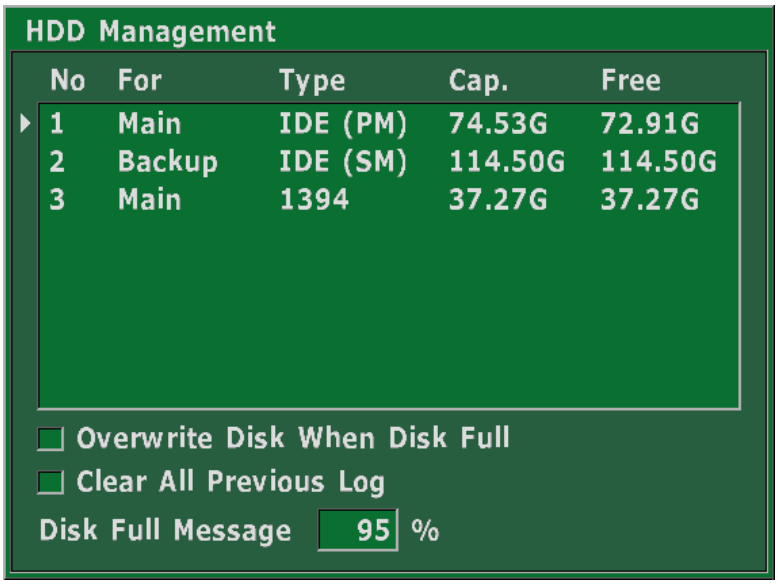
2) You can check the events by the following procedure:

① Select events you want to check by using Jog.

② Click the Enter button.

③ If you click the Stop(■) button, screen search is stopped.

5.7.2 HDD Management


HDD Management
No For Type Cap. Free
1 Main IDE (PM) 74.53G 72.91G
2 Backup IDE (SM) 114.50G 114.50G
3 Main 1394 37.27G 37.27G
Overwrite Disk When Disk Full
Clear All Previous Log
Disk Full Message 95 %

● Set up HDD
Main HDD : Can be used for basic REC.
Backup : For backup HDD.

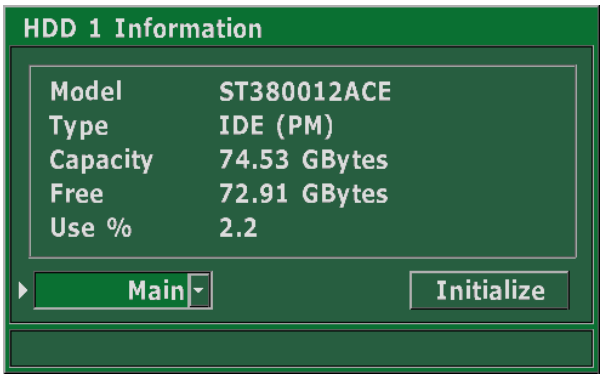
● Set up REC mode of the main HDD.

● Set up overwrite mode. Overwrite
: If HDD has no space to record, it automatically overwrite.

● Log clear function. : Delete stored log.

● Set up HDD using percent.

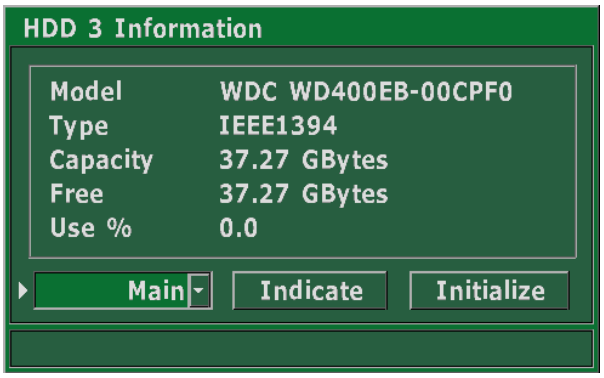
● HDD Information



● This is for information of Local HDD.

● Set up HDD.
Main : Basic HDD for recording.
Backup : For backup HDD.

● Initialize : Initialize HDD.



● This is for information of external IEEE 1394 HDD.
As clicking the Indicator on the menu, you can know which HDD is.

Please turn off the power when you connect external IEEE1394 or USB with DVR for the purpose of avoiding damage. After power off, connect IEEE1394 or USB device and then turn on the power.

If you reset DVR, you have to power off the IEEE 1394 or USB device.

When use external IEEE 1394 HDD drive, make sure it is connected to external IEEE 1394 HDD drive at the HDD Management menu.

When use external IEEE 1394 CD-R/RW, connects with DVR first before connecting with external HDD device.

HDD Almost Full!

● It is displayed when HDD is almost full.

● How to Setup

1) Add new HDD.

① When adding a new HDD, you must turn the power off.
② If there is information of a new HDD, HDD Management is displayed at the first stage.
③ Must need more than one Main HDD.
Backup HDD is only one.
Possible to install a maximum of 4 HDD. (Main 3ea, Backup 1ea)

④ It is better to clear the date when an HDD is registered for the first time.

MAIN

IDE1 : Master (Internal HDD)

IDE1 : Slave (Internal HDD)

BACKUP

IDE2 : Master (Internal HDD)

IDE2 : Slave (Removable HDD)

Notice
If you make a mistake during HDD installation or removal, HDD contents can be erased. (Ex. When changing Main HDD to Backup HDD or changing Backup HDD to Main HDD.)

2) Overwrite Disk When Disk Full

Monitor screen displays a similar message as the following according to overwrite on/off.

On

Main HDD is full, it starts to overwrite old DATA.

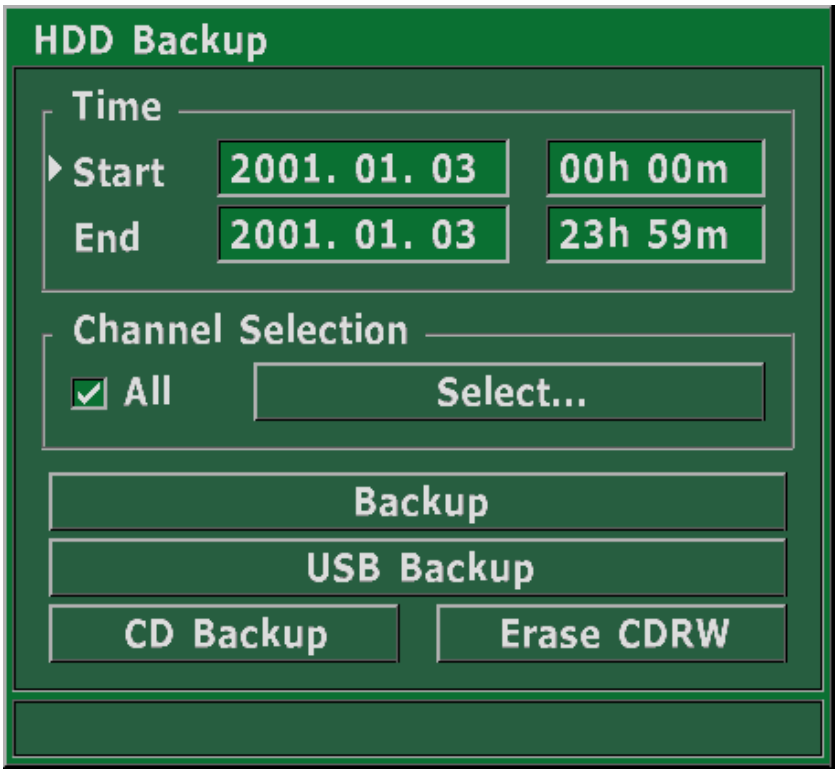
Off

When Main HDD is full (100%), recording is stopped.

3) Clear All Previous Log.

It is the place for initial Log content.
It is better to initiate Log, when HDD or DATA is changed.

5.7.3 HDD Backup



- Records some of contents recorded on the Main HDD on the Backup HDD or CDRW.
- There must exist a Backup HDD and content must exist at hour/minute of the setup date.
- HDD Backup, USB Backup and CD Backup are allowed.
- How to Setup

1) Set up Start and End date by using Jog and the left/right button.

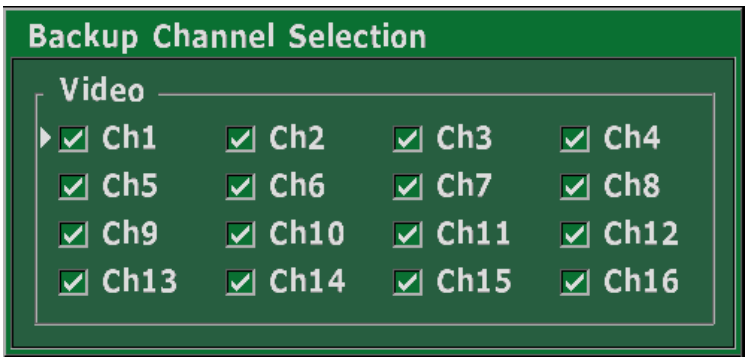
2) Able to select channel to backup if selecting [Select...].

3) Backup operation is done if selecting Backup. Much time may be required depending on operation of system. Progress status is displayed by percent.

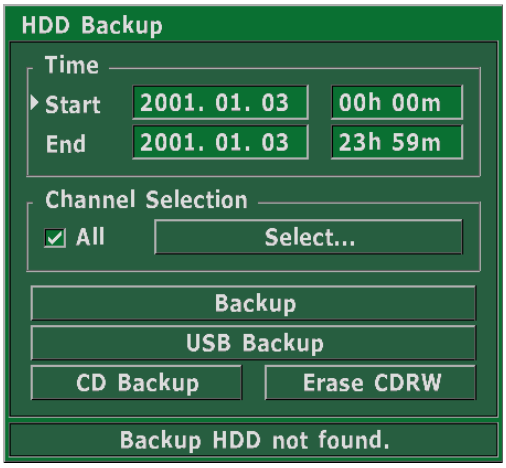
4) “Out of backup range” is output where there is no date to backup.

5) “Backup HDD not found” is output where there is no HDD to backup.

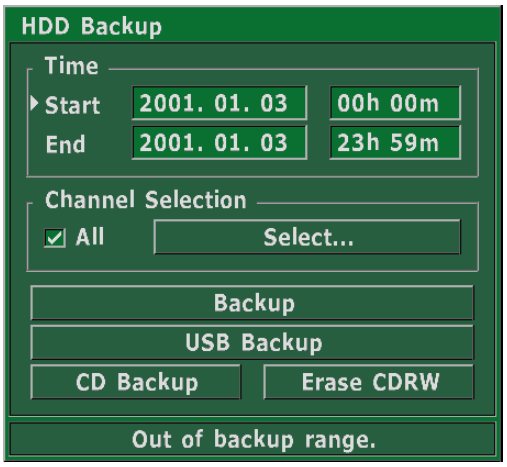
6) Press EXIT button in cancellation during backup.



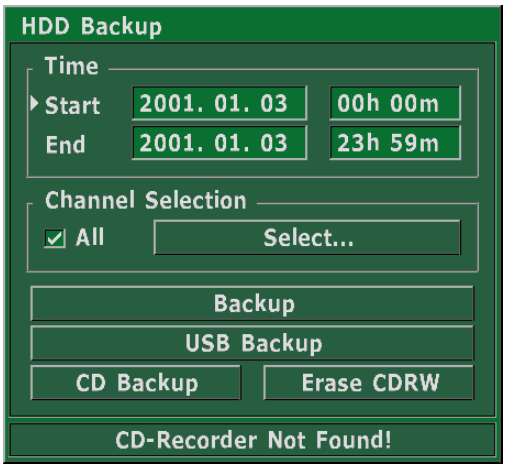
● Select channel to backup.



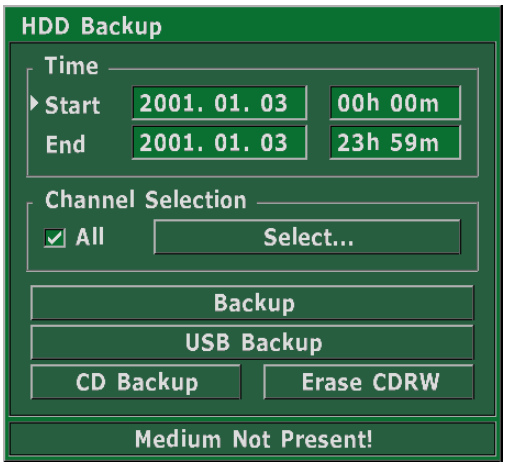
● It displays there is no backup HDD.



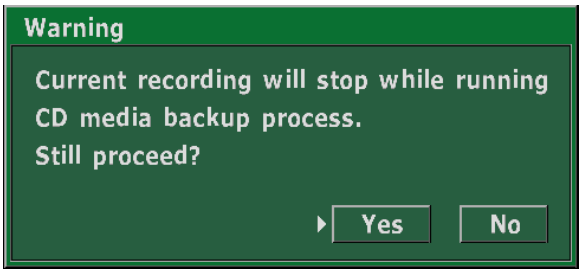
● This is a window appeared when there is no data to backup



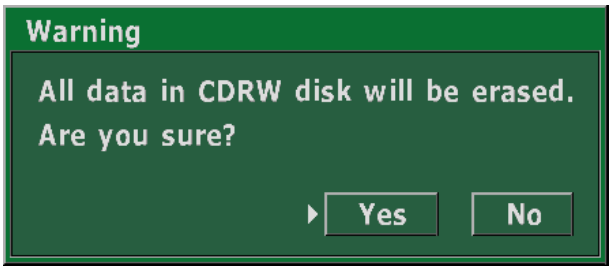
● This is a window appeared when a recorder is not installed in CD backup.



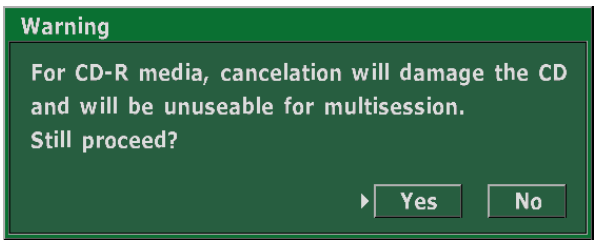
● This is a window appeared when there is no CD to backup in CD backup.



● This is a warning window showing that Recorder does not operate at the HDD of main body during CD backup.

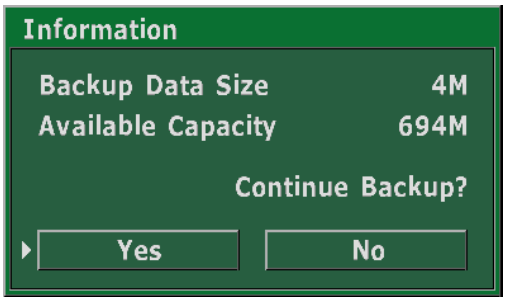


● This is warning window showing that data at CD may be lost for CD erase.



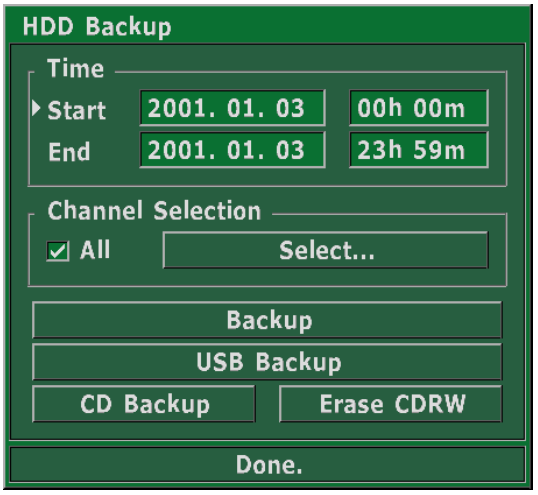
● This is a warning window appeared when pressing MENU for suspension for CD backup and showing that damage to media may occur.

● Checks data capacity to backup and available space at CD-RW for CD backup.



● Determine whether backup will be executed after check.

● This is a window during backup.



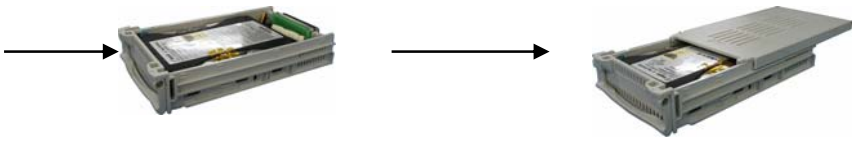
● This is a window appeared when backup is completed.

● How to connect removable HDD

Separate inside rack from hard rack.

Open inside rack and push top cover.

Connect data cable of the inside rack with the power line exactly.



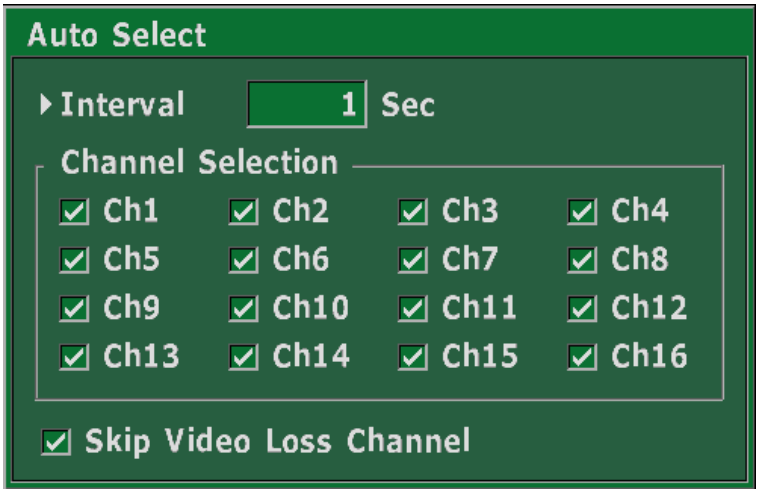
Fix the hard drive to the inside rack with 4 screws as shown.

Close the cover of the inside rack.

Notice
If the product is being HDD backed-up, you will not be able to use the playback (P/B) remote control function. (Live monitoring is possible)

When add HDD or take HDD, please turn off the power. HDD is possible to damage when its' remove while power is on.

5.7.4 Auto Select

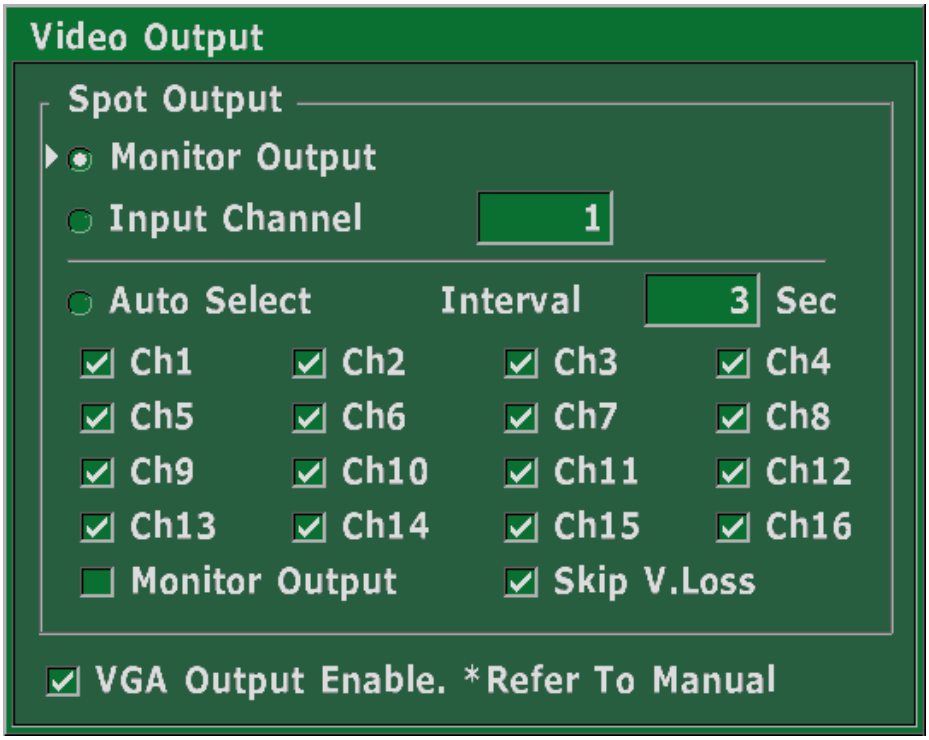


● Select Delay and Skip of the Auto Switch. ● Factory Default : all channels are checked.

● How to Setup

1) Auto Select function is for automatic switchover of the Monitor screen.
2) Delay of the Auto Switch range is 1 ~ 300sec.
3) All Channels are On when the system starts for the first time. As 'Skip Ch' is selected, Ch is skipped.
4) Auto Select of User Define is automatically switching by mode switching.

5.7.5. Video Output



● Select the Spot Out channel.

● Select VGA output.(If you turn off the VGA output, monitor screen quality is better than before.)

● If there is no VGA output on the VGA output port, press the STOP button and one of DISPLAY button at the front button for about 3sec then VGA output will be on automatically.

● How to Setup

1) Select what you want to change by using Jog.

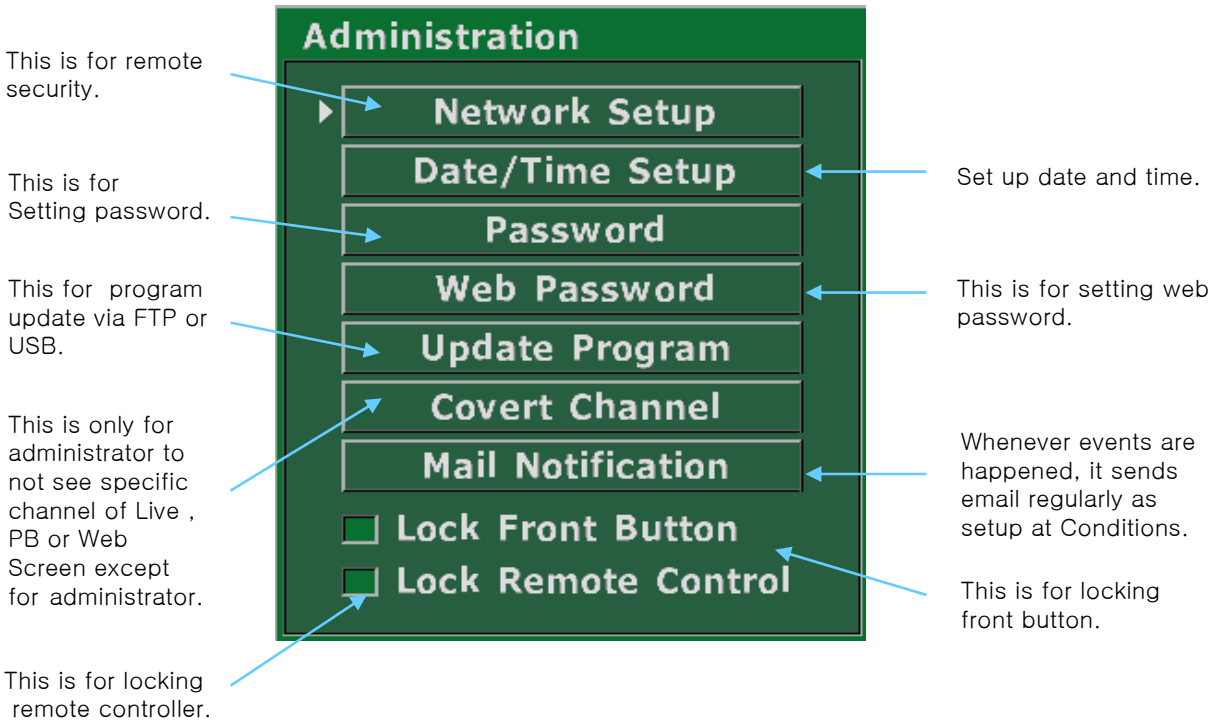
2) When you select Monitor Out, the Spot Out port is the same as the Monitor Out.

3) If you select Input Channel, the selected channel is displayed beside Input Channel.

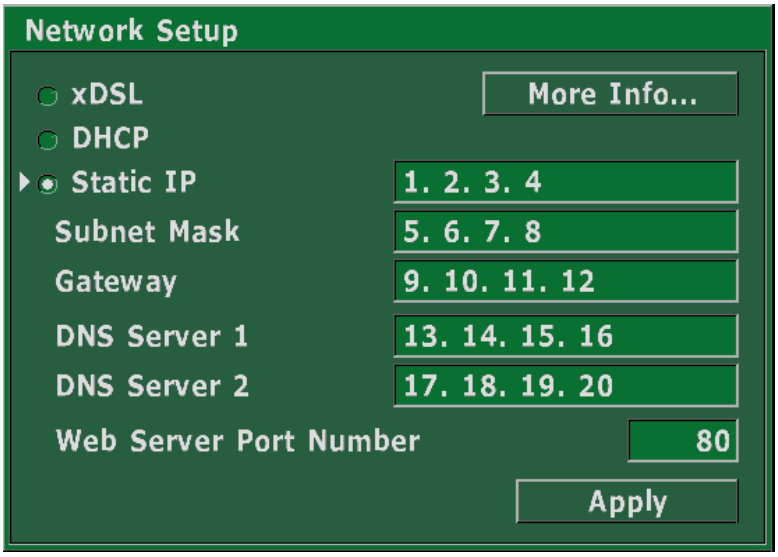
4) If you check VGA Output Enable, the image is displayed to VGA port.

5) Finish setup by using either the ENTER or EXIT button.

5.7.6 Administration


Administration
Network Setup
Date/Time Setup
Password
Web Password
Update Program
Covert Channel
Mail Notification
Lock Front Button
Lock Remote Control
This is for remote security.
This is for Setting password.
This for program update via FTP or USB.
This is only for administrator to not see specific channel of Live , PB or Web Screen except for administrator.
This is for locking remote controller.
Set up date and time.
This is for setting web password.
Whenever events are happened, it sends email regularly as setup at Conditions.
This is for locking front button.

5.7.6.1 Network Setup



● You can select xDSL, DHCP, Fixed IP for Network.

● You should install the following items for remote search and control by a fixed IP. (Refer to the Internet setup value you want to install.)

● How to Setup

1) Move to the place you want to change the setup by using Jog.

2) Select contents to change by using the ENTER button.

3) Select place to change by using the right/left button.

4) Select the number you want by using Jog.

IP Address : _____._____._____._____

Subnet Mask : _____._____._____._____

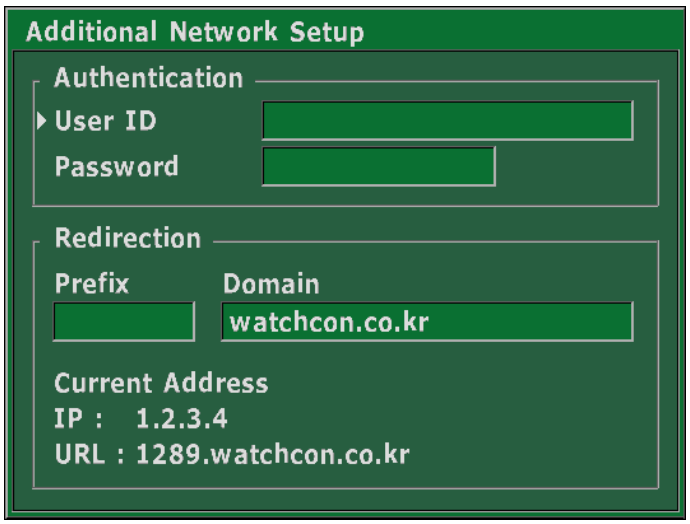
Gateway : _____._____._____._____

DNS : _____._____._____._____

Notice
(Possible to have a Network problem when its installation. To avoid this problem consult the network manager for setup values.)

5) Setup contents are automatically applied if you press the " Apply" button and move to a higher menu.

● After press 'More Info...' button, you can write following texts.



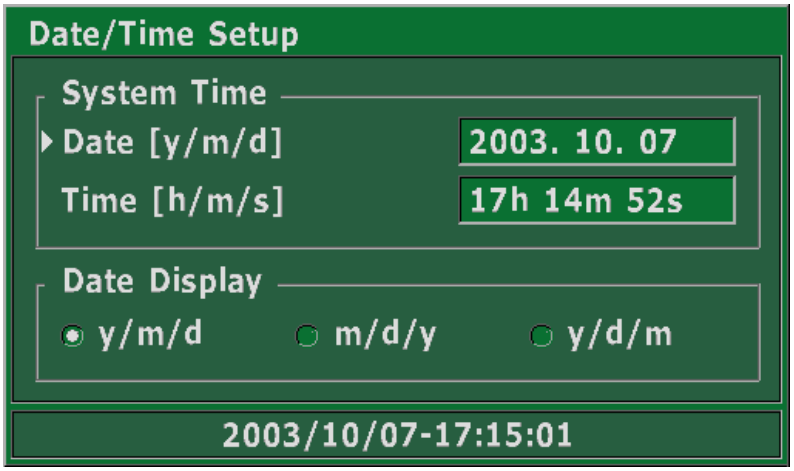
● Authentication : In case of xDSL, write User ID and Password which you use.

● If you want to connect by domain, write Prefix and Domain.

● Prefix : This is an user domain which is in front of main domain. It could be used Mac address with designated name by user.
ex) dvr

- Domain : Resister operating sever domain. (ex, digitalbon.com)
- After setup finish, press the “Apply” at the Network Setup then click the “Restart Now”.
- As put the prefix and domain, Mac Address is automatically displayed at URL
  (ex : if Mac Address is 365, URL will be dvr365.digitalbon.com)
  http://dvr365.digitalbon.com
- The full domain name of URL is Prefix + MAC address . Domain.
- Possible to connect by using the Full Domain Name which is URL of web browser.

5.7.6.2 Date/Time Setup



- Set-up Date and Time, which will be used in the system.
- Set-up “Date Display”.
- How to Setup

  1) Move to the place you want to change the setup by using Jog.

  2) Select contents to change by using the ENTER button.

  3) Select the place to change by using the right/left button.

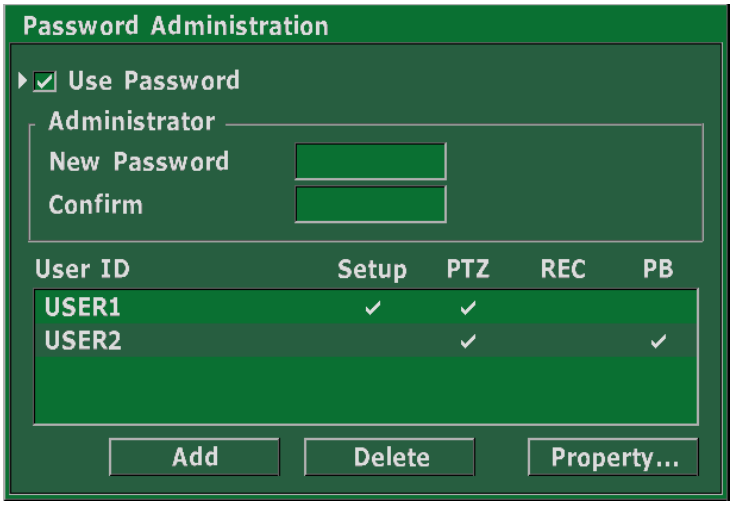
  4) Select the number you want by using Jog.

  Date (year/month/day) : _____._____._____
  Time (hour/minute/second) : _____._____._____

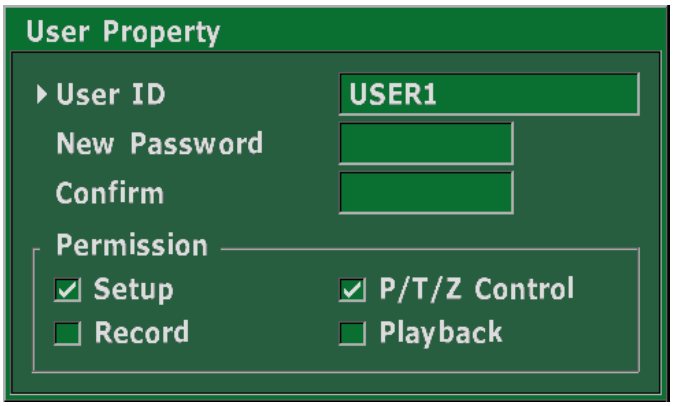
  5) Select type of display.
  y/m/d m/d/y y/d/m

  6) Setup contents are automatically applied if you move to a previous menu.

5.7.6.3 Password Administration

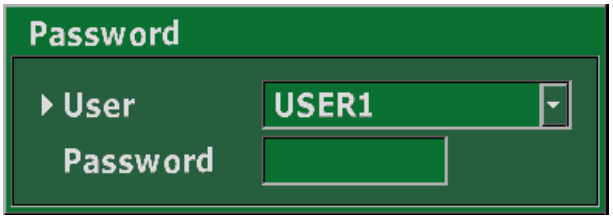


- You can use a password for system security.
- Password mode will display as click the check box.
- Menu is off if there is no operating for 1 minutes.
- The password must 4 digit numbers.
- Enter “New Password” and “Confirm” through CHANNEL buttons.
- Setup : Setup menu, PTZ : Control camera, PB : It means playback.



- Every user can make ID.
- Every user can make password.
- Each user have a different permission to use.
- Enter “New Password” and “Confirm” through CHANNEL buttons.

● It is displayed if there is no User ID.

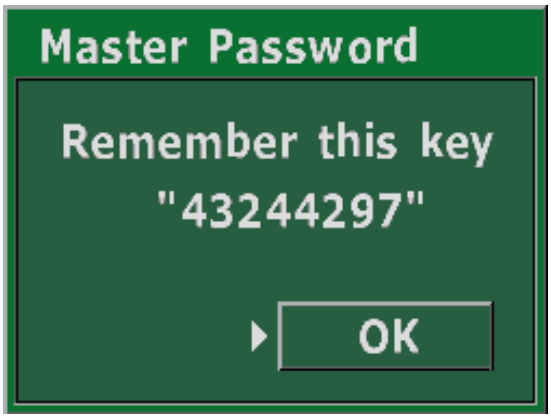


● It is displayed if there is User ID.

● This message is displayed when enter “MENU” after setting password.

● Enter the Password.

● If you input wrong password, you can not enter the MENU.
If you input wrong password 3 times, MENU screen will disappear.
To input password again, please press the MENU button.



● It is displayed when using Admin Password for the first time.

● It is better to remember Master Password.
It can be used when lose Admin Password.

● Enter Master Password on Password.

● How to Setup

1) Check the box to activate passwords.

2) Select a new password and then enter again for confirmation.

3) Select a new password by using Jog.

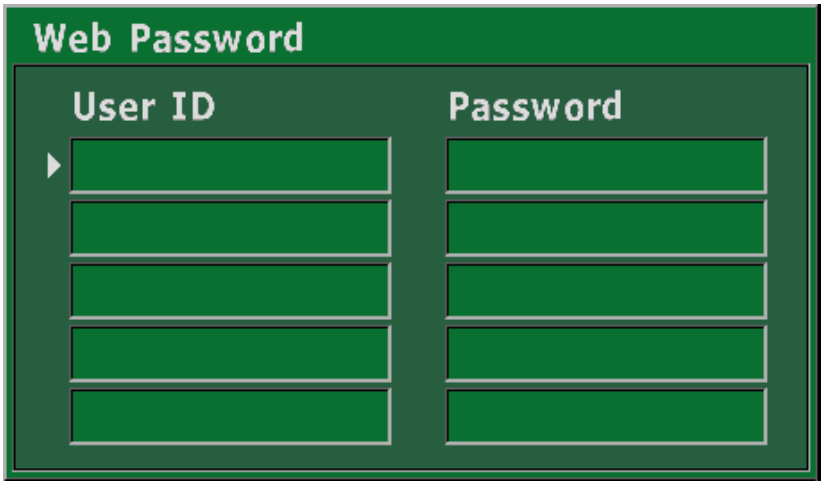
4) Enter “New Password” and “Confirm” through number buttons of INPUT buttons.

5) As “Setting” select, password is changed.

Notice

If you forget the password, you can not operate the system! Please be sure to remember the password or write it down in a secure place.

5.7.6.4 Web Password

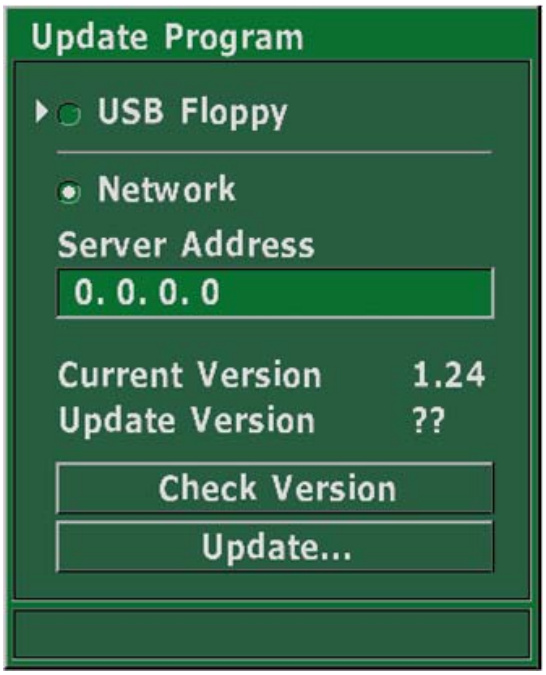


● This is for remote control by using Network.

● User ID is possible to use up to 8 Numeric.

● After selecting by jog, press the ENTER button for setup.

5.7.6.5 Update Program

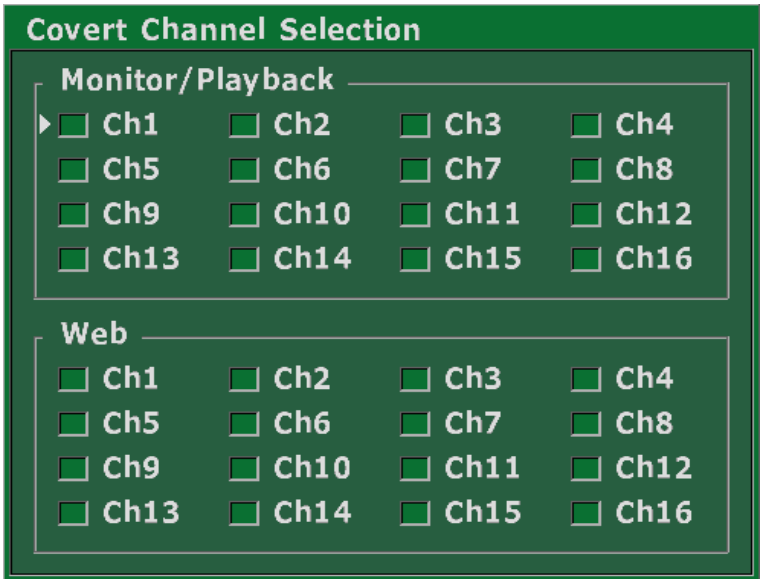


● It is for update new program through the sever.

● Check Version
: Check current system version.

● Update...
: Update new program by USB Floppy or Network

5.7.6.6 Covert Channel

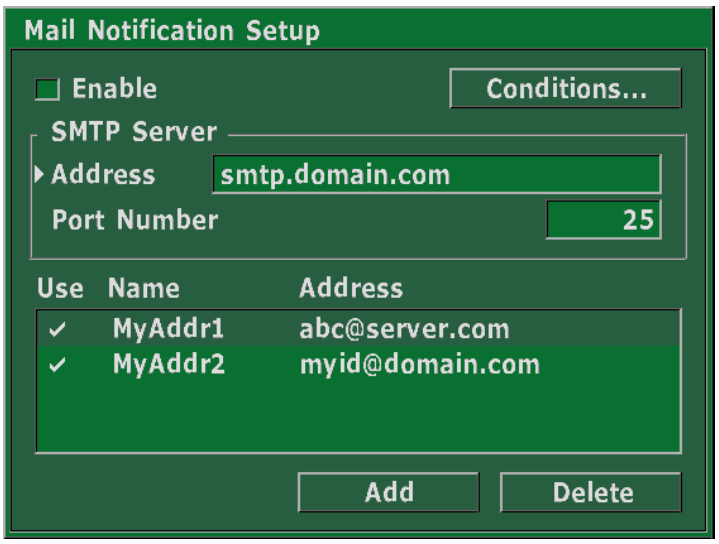


● Covert Channel Selection should be setup to use password.

● The selected channel at Monitor/Playback is only possible to record and live screen or playback screen is displayed with V-Loss.
If you want to see playback screen, you must use Administrator Password.

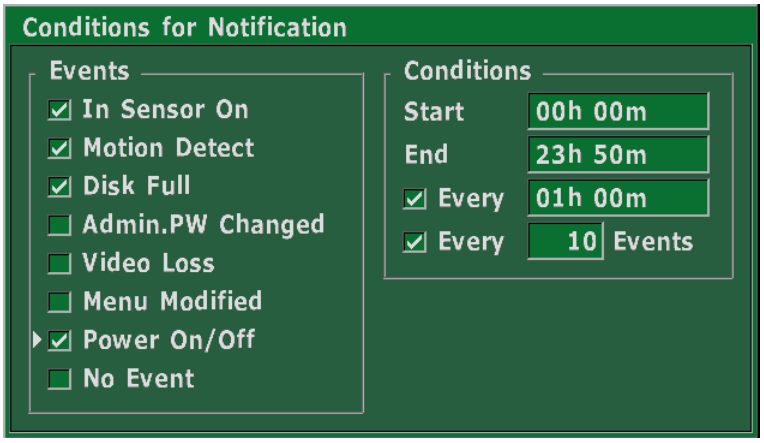
● The selected channel from the Web can not able to see live or playback screen through the Web.

5.7.6.7 Mail Notification



● Whenever events are happened, it sends email regularly as setup at Conditions.

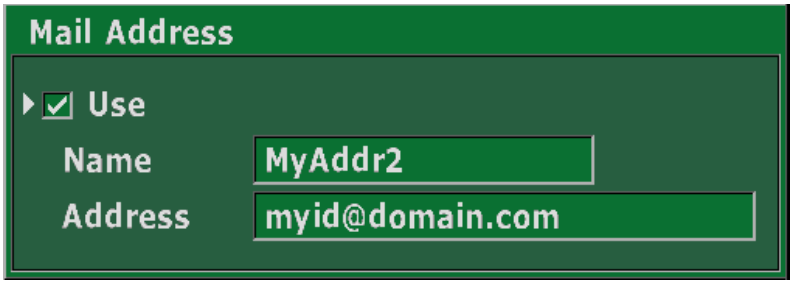
● You can write “Use Name” infinitely.



● Events :It sends email when Events are happened.
If you check “No Event”, it sends email when there is no event providing Every Events are not checked at Conditions.

● Conditions : It sends email at Start and End time as set up.

1) Start/End : If you set up at 10h00m(Start) and 18h00m(End), it sends email from 10h00m to 18h00m. If you do not set up Start(00h00m)/End(00h00m), email is not sent.
2) Every (Time): If you check Every (Time), it sends email regularly as time setup. Ex) 01h 00m: It sends email every an hour.
3) Every (Events): If you check Every (Events), it sends email when events are happened as many as you write.
Ex) 10 Events : It sends email when events are happened 10 times.
4) For sending email, it must to be checked both Every except follow condition.
5) Every Events are limited to 100 units so if you set up Every Events at 100, it sends email as 100 events are happened regardless of time intervals. (Every Time)



- You can register Email address you want to send and you can check whether you use or not.
- You can write up to 8 characters for Name and you can use up to 32 characters for Address.

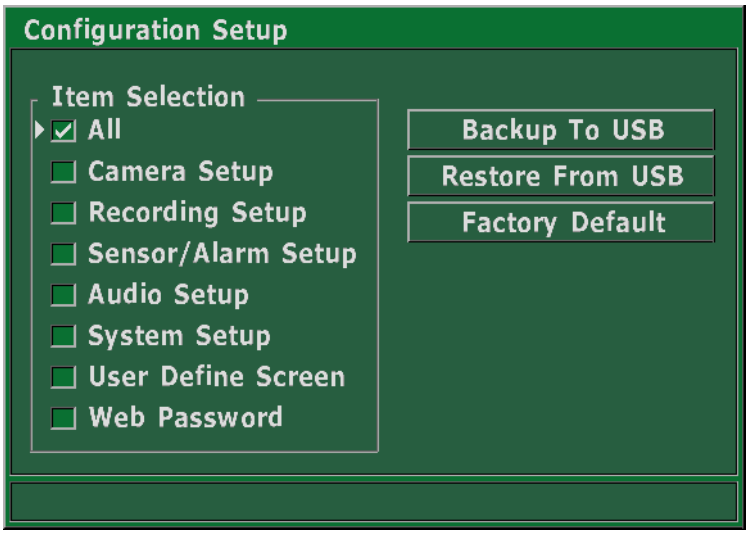
5.7.6.8 Lock Front Button

- Lock Front Button : As check this menu, front buttons will be locked except menu and power button. This is useful for security of front buttons.

5.7.6.9 Lock Remote Control

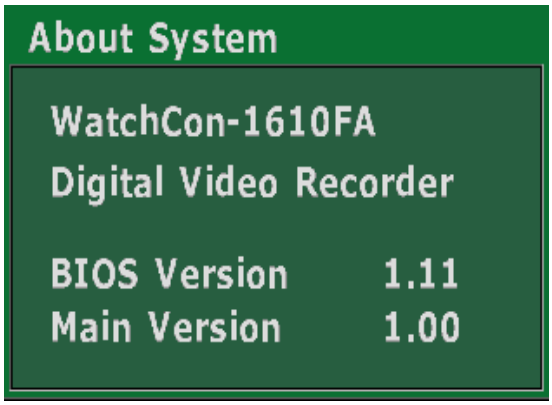
- Lock Remote Control : This is for locking remote controller. (locked).

5.7.7 Configuration Setup



- Able to manage setup of DVR by item.
- Select item to backup or restore setup among items of Item Selection.
- Able to backup setup of item selected by pressing Backup To USB on the USB disk.
- Able to restore setup of item selected from the USB disk by pressing the Restore From USB.
- System setup is changed to setup in shipment if pressing the Factory Default button. In this case system is rebooted.

5.7.8 About System



● This is Software and Bios version of the System.

5.7.9 Default in Setup Menu

Camera Setup	Camera Group Select	Recording Setup	Recording Schedule
Name: Adjustment Brightness 50 Contrast 50 Saturation 50 Hue 0	A : Ch1 B : Ch2 C : Ch3 D : Ch4 E : Ch5 F : Ch6 G : Ch7 H : Ch8 I : Ch9 J : Ch10 K : Ch11 L : Ch12 M : Ch13 N : Ch14 O : Ch15 P : Ch16	Record Events : Always : Use Field : 1/sec Motion Setup : Not installed	Everyday 1, 2, 3 : Mon Tue Wed Thu Fri Sat Sun 00:00-23:59 /ABCD EFGHIJKLMNOP Specific Days 12EA : Off
Sensor I/O Setup	**User Define Screen**	**Audio Setup**	**System Setup**
Sensor In : Not installed Sensor Out : Not installed	It is set sequentially from channel 1	Schedule : CH1 Sampling Rate : 8KHz Audio Source : Line Audio Select Delay : 3 sec Bypass	Record Quality : 720 * 240 Normal Sensor/Motion : Prev. Time : Middle Post Time : 3 sec Date/Time : Present time Spot Monitor : Single,CH1 Admin Password : 1.2.3.4

● Design and specifications are subject to change without notice.

5.8 Monitor Display

● Recording Status (According to color)

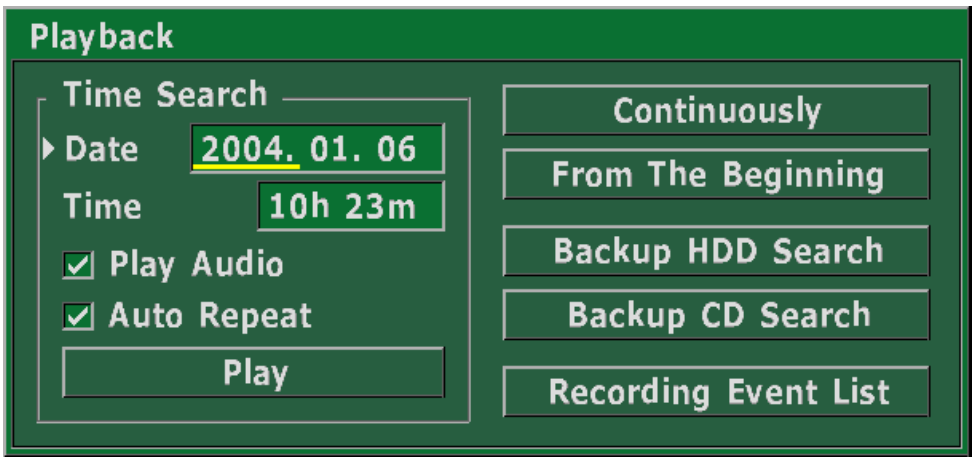
1) RED : It is being Recording. (Always recording)

2) GREEN : It means it is being Event recording by motion detection or sensor input.

3) BLUE : It means DVR is on monitoring.
(No recording, just for monitoring)

4) WHITE : No input signal status.

5.9 Playback



● Following screen appears if pressing the Search Button.

● How to Setup

1) After entering the date and time, select “Play”.
2) Play Audio : You can listen to the recorded audio if input.
3) Auto Repeat : After finishing playback, it is returning to the first playback screen automatically.
4) Continuously : Play begins from the most recently played after Power On.
5) From The Beginning : Play begins from the longest time of play data.
6) Backup HDD Search : Retrieves content of Backup HDD.
7) Backup CD Search : Retrieves content of Backup CD.
8) Recording Event List : Log screen logged by sensor and motion appears. Able to confirm contents logged by event. (See Log Screen search)
9) Play screen appears according to setting of data if executing play. Able to more conveniently retrieve if using the Jog, Shuttle button.

It should be set up Date, Time when checking Recording Event List.

Play is immediately executed if pressing Menu button with PLAY window prompted. Screen immediately returns to status prior to play if pressing Stop Button twice during play.

Screen may temporally stop or other channel may appear by shock to HDD or other damage during play operation.

In case of playing with more previous time than recording time in HDD, searches for the initially recorded time for play.

Screen may tremble or instable due to problem of data transfer rate when playing the sheath type of the IEEE 1394 HDD unit.

● Motion by Mix Button

If you press the Display button and Mode button (Panorama, Triplex) during the play mode, the screen format is displayed with Multi/Panorama/Triplex.

1) SINGLE/QUAD/NINTH/SIXTEENTH/FULL/CIF/AUTO :
Content recorded various channels are displayed at the same in 1(FULL)/1(CIF)/4/9/16 screens. You can confirm various channels at the same time and thus retrieve channel rapidly and easily.

● What's CIF Playback ? Means to play date recorded to 360*240(NTSC) on the screen with size of 360*240.

● During play, single screen is Auto CIF Playback. In this case, CIF play is done if the size of stored data is 360*240, and Full Screen play is done if 720*240. Reverse play in the Auto CIF Playback status is executed if changing to Division Screen by pressing the display key. 720*240 play is done if previous status is 360*240, and 360*240 play is done if previous status is 720*240. Quad, Nine and Sixteen screen are sequentially changed if pressing the display key once again. It is changed to Auto CIF Playback mode if pressing it at the Sixteen once again.

2) PANORAMA : Channel reproduced to frame unit.
This is a time slice picture so it is useful to use a precise search.

3) TRIPLEX : Possible to view playback while monitoring.

● Jog & Shuttle motion

1) It is more convenient to search by using Stop, Pause, Replay, Play, Jog, Shuttle.

2) Possible to reproduce each frame by using Jog from the pause screen.

3) Enable quick search by using Shuttle.

● Backup HDD Search

1) Recorded contents of the Backup HDD are displayed.

2) You can view recorded contents by using the Jog and ENTER buttons.

● Recording Event List

1) Contents of Sensor/Motion are displayed at the Log View.

2) You can view recorded contents by using the Jog and ENTER buttons.

Recording speed can be changed or stopped temporally when it is in divided screen or lip-sync at the replay mode.

If DVR is being replayed or back up at the same time, replay speed can be changed or stopped temporally.

5.10 Power Off

● You can power off by using the front power switch.

When system is downed, press the system reset button for returning to normal.

If you do not use DVR, please turn off the power switch of rear. If the rear power switch is on, DVR will be on when a momentary blackout.

6. External Backup

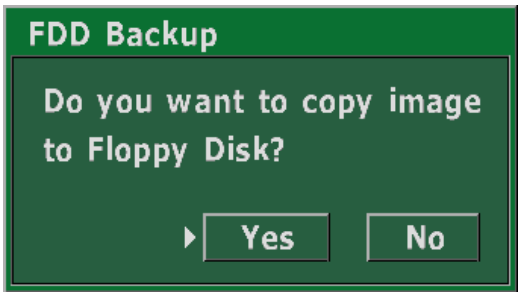
6.1 External USB Port

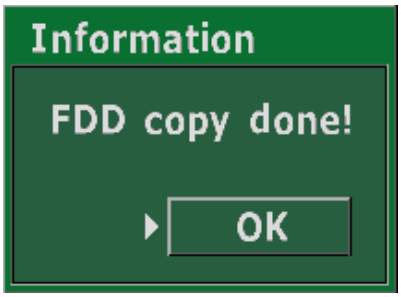
6.1.1 Connect with External USB Port

USB port is possible to connect with FDD or ZIP driver and it is useful for freeze screen backup by reason that capacity is low and speed is slow.

6.1.2 How to Backup

Connect with external USB port as blow picture. If there is power on, please turn off the power then connect with USB device.





Back up FDD as connecting with USB FDD

● How to Setup

1) Pause the full screen after playback you want to backup.
2) Press the direction COPY button then FDD backup menu will display.
3) Press the ENTER button for setup.

If you reset DVR, you have to power off the IEEE 1394 or USB device.

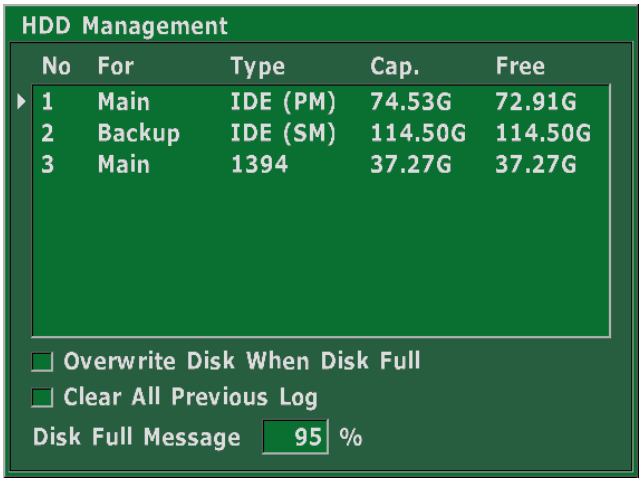
6.2 External IEEE 1394 Port

6.2.1 Connect with External IEEE 1394 Port

IEEE1394 port is possible to connect with HDD or HDD bay and it is useful for direct backup, backup and playback by reason of large capacity and fast speed.

6.2.2 How to Connect with IEEE 1394 Port

Connect with external IEEE1394 port as blow picture. If there is power on, please turn off the power then connect with IEEE1394 device.


HDD Management
No For Type Cap. Free
1 Main IDE (PM) 74.53G 72.91G
2 Backup IDE (SM) 114.50G 114.50G
3 Main 1394 37.27G 37.27G
Overwrite Disk When Disk Full
Clear All Previous Log
Disk Full Message 95 %

The left picture will appear on HDD Management as connecting HDD with external IEEE 1394

- As selecting system/HDD Management at Setup Menu, the above picture is displayed.
- After check indication status is right, select whether use or not then HDD is set up normally.
- IEEE1394 HDD is able to use Main or Backup and possible to playback as well.

※ Note

IEEE1394 enables direct connection up to 20ea. For example, 160G HDD can back up maximally 1.6TByte.

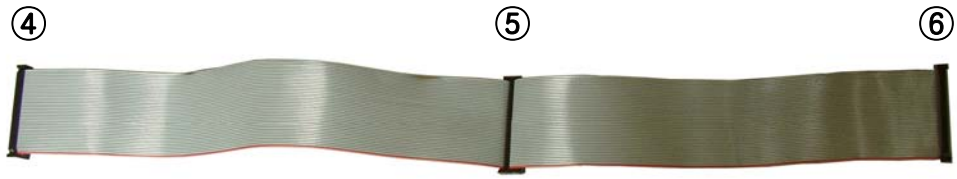
! If you reset DVR, you have to power off the IEEE 1394 or USB device.

! During replay external IEEE1394 HDD, screen wave is possible because of data transfer speed.

6.3 How to connect with HDD Cable

● Precaution for connecting with additional IDE HDD

1) Primary IDE HDD Cable



2) Secondary IDE HDD Cable

1) Primary IDE HDD Cable

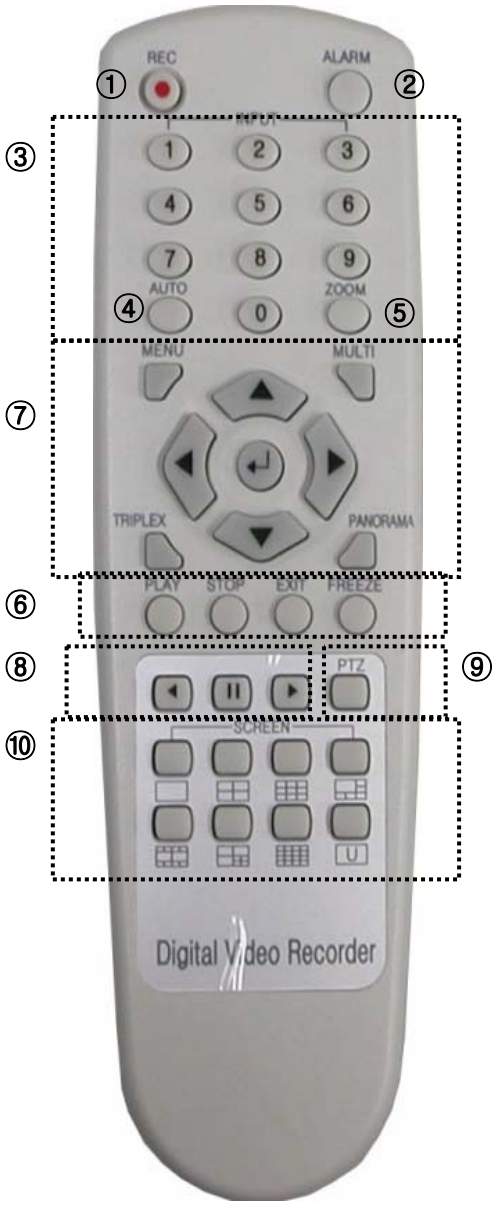
- Connect ① to P1 of CPU Board Socket.
- Connect ② to Primary Slave HDD.
- Connect ③ to Primary Master HDD.

2) Secondary IDE HDD Cable

- Connect ④ to P2 of CPU Board Socket.
- Connect ⑤ to Secondary Slave HDD (Removable HDD).
- Connect ⑥ to Secondary Master HDD.

7. Remote Controller

7.1 Outline



For the first step, you should give a ID for control DVR by one remote controller.

1) Press one of INPUT button (1~9) and STOP on DVR at the same time then the number Which you pressed will be the ID.
2) Press INPUT button (1~9) on remote controller for 3 seconds then remote LED on front panel of DVR will be flickered.
3) This DVR has ID by pressed button number.
   Make sure there is no same ID as using several DVR.

7.2 Details

①

● REC Button : When the REC LED is on, it is recording as per set-up instructions.

②

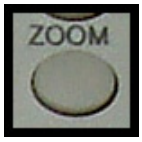
● ALARM RESET Button : For stop the Sensor Out.

③

● INPUT Button :These buttons are used to select the screen monitors and to change the channel settings at the menu.
If you want to change channel, press 01,02,03,…10,11,…16.

④

● AUTO Button : The Input channel is automatically switched in proportion to the speed setting at the menu.

⑤ 

● ZOOM Button : This is used to zoom a freeze-frame in playback mode. Power is X2.

⑥

● PLAY : This button is for playback.

STOP : This is for coming out from the menu while it is being playback.

EXIT : When coming out from the menu after setting finish.

FREEZE : For pause the image.

⑦

● MENU : This button is for selecting or canceling the monitor setup menu mode.

MULTI : This is for change the screen format to 1,4,9,16.

TRIPLEX : To see live and PB screen at the same time as making replay screen to PIP mode.

PANORAMA : It changes PB screen to Time slice mode.

ENTER : For applying setting value.

Up/Down/Left/Right Button : For moving Menu to Menu.

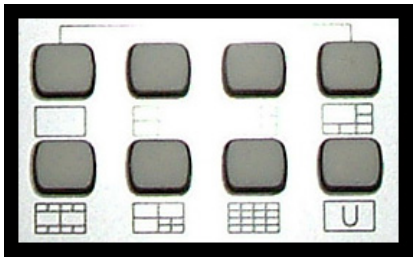
⑧

● REVERSE PLAY, PAUSE, FORWARD PLAY : These buttons are used for controlling the playback. At the Menu mode, Reverse Play Button is used for Cancel and Forward Play Button is used for Enter.

⑨

● Select Pan/Tilt/Zoom of Camera

⑩



● SCREEN Button : This button is for viewing the various division modes of the monitor screen.

8. Cautions and Troubleshooting

8.1 Cautions

1) Turn the power switch off before installation.

2) Check the power whether it is AC115V or 230V.

3) 0°C~40°C is suitable temperature to use this product.
Install in a well-ventilated area and keep it out of direct ray of sunlight and heater.

4) Void strong vibrations and shocks.

8.2 Troubleshooting

● If there's any other problem, contact dealer or technician

	Symptoms	Confirmations	Checking
1	No screen output.	Power Switch Lamp, KEY LED is not turned on.	Cut off the power Supply and check the Fuse. Change CABLE.
2	Screen breaks during sequencing MONITOR output.	Check Input Status of The corresponding channel.	Checking Level of Input (1Vp-p)
3	No menu screen.	Secure the connection of the monitor.	Check for Monitor Operation.

If the problem doesn't improve, please ask Service Center to the head office.
(Service Information Center TEL :).

8.3 Recommended HDD List

Recommended HDDs are as follows.

Maker	Capacity	Type	Remark
Seagate	40GB/5400RPM 60GB/5400RPM 120GB/7200RPM	IDE	
Western Digital	40GB/5400RPM 120GB/7200RPM 200GB/7200RPM	IDE	
Maxtor	80GB/5400RPM 160GB/5400RPM 250GB/7200RPM	IDE	
IBM	120GB/7200RPM	IDE	
HITACHI	180GB/7200RPM	IDE	

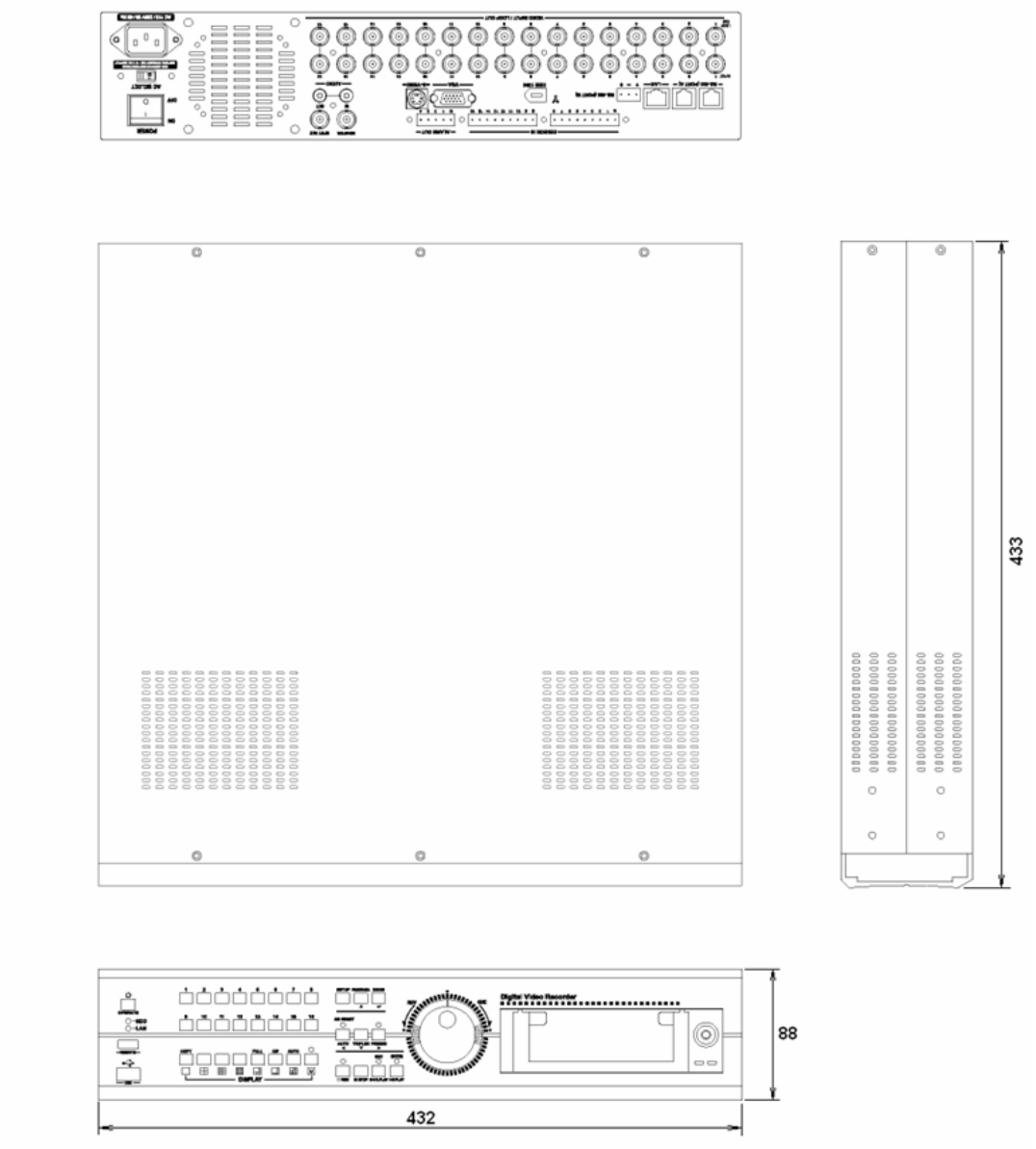
9. Standard Specification

CAMERA INPUT SIGNAL PART	• Video Signal : CCIR-M(NTSC Color) : CCIR-B.G.I(PAL Color) • Input Channel : 16 EA • Video Input Signal BNC : Composite 1.0Vp-p with Loop-Output
INPUT SIGNAL PART	• Compression Extension Mode : WAVELET based • Recording Resolution : NTSC(720×240),(360*240) PAL (720×288),(360*288) • Compression Level Setup : 7 Level (Best Image ~ Long Time)
OUTPUT SIGNAL PART	• Monitor output : Composite 1EA : 1.0Vp-p±0.2, 75 Ohm BNC S-Video 1EA : Y:1.0Vp-p±0.2, C:0.286Vp-p VGA Monitor 1EA : 800×600 VGA(CRT) Monitor 15P DIN • SPOT Output : Composite 1.0Vp-p±0.2, 75 Ohm BNC • Output Mode : 1) Live : FULL/4/6/7/8/9/13/16/Zoom/User 2) Playback: Full (Auto CIF)/Reverse of the previous state /4/9/16/Triplex/Panorama/Zoom 3) REC & Simultaneous PB • Automatic Change Time : Auto Mode 1-300 Sec CH Skip Function included • Playback Search Mode : 4 Mode (Date, Time, Channel, Event)
AUDIO SIGNAL PART	• Audio Input : 1 CH Mono RCA/Phone Jack • Sampling Late : 8 kHz • Audio Output : 1 CH Mono, -5dB RCA/Phone Jack
SYSTEM CONTROL PARTS	• Power on Stability Time : Less than 50 Sec • Main Control : Embedded Type CPU Board • HDD Control : 1) ULTRA DMA IDE Type (Max 3EA Usable) 2) Removable Type : 1 EA 3) IEEE1394 Type HDD 4) Capacity : 120G Byte • Time Display : 1) Tolerance : 2sec/days 2) yy/mm/dd, mm/dd/yy, dd/mm/yy, h/m/s • Clock Data backup : Remained while power off • Channel Name : Max 16 Character/CH • Character Mode : Capital/Small Letter, Arabic, Symbol
ALARM CONTROL PARTS	• Sensor Input Signal : 16 Input, Low Active Alarm TTL or Contact Point Input • Sensor Output Terminal 1) 4 Output : Relay, NO/NC Selectable Output 2) Setup : Sensor Input, V-loss, Motion, Disk Full, Power Off Control • Alarm Log Mark : Max 25,000EA, Hour/Min/Sec, CH, Name, Event Mark • Motion Detect : 1) Detect Channel : 16EA 2) Detect Sensitivity Control : 30 Step 3) Mode : Full Screen/User Area(16H×16V)

EXTERNAL REMOTE CONTROL PARTS	• Control Part : Serial I/O Part : 2EA RS-485 3P Terminal RS-422 RJ11 Jack • LAN I/F : Ethernet 10/100M RJ45P • Remote Control : Able to control by using private line or Web Browser 1) Camera Input Monitoring 2) Pan/Tilt Camera Control 3) Recorded Screen Search
EXTERNAL BACK-UP CONTROL PARTS	• USB Port : 1EA,USB1.0 Usable USB Memory, FDD,USB ZIP Driver • IEEE1394 Port : 1EA, Usable 1394 HDD, CD-R/RW, HDD Bay • External HDD Capacity : MAX 4EA with IEEE1394 Port (Max 20EA Option)
IMAGE RECORDING CONTROL PARTS	• Recording Mode Setup: 4 Mode 1) Real Rec : Max at 120fps(360*240),60fps(720*240 2) Time-Lapse Rec : 30field/sec~ 1field/59min 3) Motion : Field, Sensitivity Setup, Velocity Setup 4) Sensor : Contact Point Input Option • Recording Schedule Setup 1) Day setup : 7EA, Sun, Mon, Tue, Wed, Thu, Fri, Sat 2) Special Day setup: 16EA
POWER SUPPLY	• Rated Power Source Input : AC 115/230V, 50-60Hz • Power Consumption : 51 /55 W(±25%) • Operating Humidity : 10-80% RH • Operating Temperature : 0℃-40℃ • Size (W×H×D) : 432×88×430mm • Weight (except package) : 8.2 Kg • Standard : CE, FCC
ACCESSORY PART	• Power Cord : 1EA • User Manual : 1EA • Application Program CD : 1EA • Rack Mount Angle : 2EA • Support Rubber : 4EA • Screw : 4EA • Remote Controller : 1EA

Specifications can be changeable for the efficiency and quality improvement of this product without prior notice.

10. Lay Out



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